GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

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STRAY STRAWS FROM DR. C. C. MILLER.

SAY, ELWOOD, some of these German fellows will be after you for crediting to Huber instead of Dzierzon the discovery of parthenogenesis.

"THE OLDEST INHABITANT" has no story to tell of a season years ago that matched this spring for forwardness. [That's about the case here.—ED.]

THAT NEW DESIGN for cover talked about on p. 350 would suit me all right if plain type were used without any pictures. [But the masses like the artistic fancy designs better.—ED.]

FIVE-BANDERS have judgment passed on them on p. 359, but that doesn't say what other five-banders are. Red cows are not all alike. [That's true; but our columns have given both sides.—Ed.]

"MOST COLONIES," says John Handel, p. 329, "if managed rightly, will build down to the bottom of sections." But what is the management? and is it less trouble than putting in bottom starters?

MY SYMPATHIES go out to Bro. Draper, p. 365. I was heavier than you, Bro. Draper, and it's a big comfort to come down some 20 pounds. The beef diet will fit you out; but if your wife won't stand that, cut your meals in two and stop drinking at meal time.

PICK THE TWO FIRST LINES off page 330 and put them at the top of second column, page 329, and then you won't think Elwood was crazy or the printer tight. [Thanks for the correction. We are glad to know that at least one of our readers could unravel the mystery. We don't believe it will happen again.—ED.]

"LAYING WORKER-CELLS," p. 356, beat me entirely. What are they, anyway? Didn't you mean mean "plurality of eggs laid by laying workers in worker-cells?" [I didn't use that expression, but let it go, as I supposed Mr. Hassett referred to something I hadn't seen. It shouldn't have been "laying worker-cells."-ED.

PAINTING HIVES with unpainted supers seems to make lots of trouble, according to Skylark, p. 328. Then why paint hives? I don't paint mine, and my supers stay straight and true year after year. Possibly because they're not overloaded with honey like Skylark's.

"PHACELIA grows spontaneously in Southern California, and seems to be an excellent honey producer," writes R. Wilkin. Wonder if there aren't two kinds. The flower I've seen looks quite a bit like heliotrope, and I should hardly think the plant would do for fodder; but in Europe they speak of it as a forage-plant.

R. MCKNIGHT, p. 340, owns up that he hasn't sold honey in his own town for ten years. Say, you Canuck, don't you know it's against rules to neglect your home market? What reasons have you for acting so? If you can make out a good defense may be I'll confess that I always ship away when I can get more money by so doing.

PROF. BONNIER, in *L'Apiculteur*, gives some interesting results of experiments concerning honey-dew. That from lice continues all day, diminishing at night. That of vegetable origin is produced during the night, being at its maximum at daybreak, and then ceasing, its production being favored by the moisture of cool nights between hot dry days.

B. TAYLOR starts on a new tack by wanting a space between comb and bottom-bar for queen-cells and winter clustering. May be all right for queen-cells; but why not leave a two-inch space under bottom-bars for winter clustering? My bees seem to cluster all right that way. [I'd rather have the comb run clear down to the bottom-bar every time; but our bees don't respect my notion.—ED.]

THAT TRAMP SERMON, p. 360, is just right all through. It's kindness to feed tramps, but it's greater kindness to make them work. When brought down to the final analysis, tramping is simply stealing. Straighten your Medina laws, Bro. Root. [Better say our national laws. It ought to be as unhealthy for a professional won't-work tramp to prey upon communities as for counterfeiters.—ED.]

GLAD TO LEARN B. Taylor's plan, p. 344, of running two stories. I've been trying about the same thing. I gave two stories in August, and reduced to one for winter; gave two again this spring; and when clover blooms, most will be reduced to one story. But what I'm anxious to learn is whether two stories is just as good as the same amount of room in one story.

HAS THE TIDE turned? After a series of poor years ending up with two successive years of utter failure, the tide seems to have started the other way; for in all my experience I think I never knew things more favorable during the same time of year than they have been for the past eight or nine months, ending with the first week in May. Don't tell me to get into a frame of thankfulness. I'm there now.

THAT ARGUMENT of P. H. Elwood, page 330, that feeding thin syrup wears out bees, sets one to thinking. But, say; if it's done early enough I don't believe it wears out bees any more than gathering thin nectar. In both cases, isn't the wearing out more than made up by new bees? It surely wears out bees to gather nectar, but you don't want the gathering stopped on that account. I suspect the bees cook up the syrup in better shape when it's thin.

G. B. REPLOGLE wintered 12 colonies facing east, and 36 facing south; 5 of the 36 died, and the weakest of the 12 came out stronger than the average of the 36. He suspects that facing south is bad, as bees would be enticed on cold sunny days to fly, never to return, while those facing east remained quiet in their hives. Worth thinking about. [Looks reasonable, and yet our hives face north, southeast, and west, and the bees in all seem to winter equally well. —ED.]

IN REPLY to J. E. Hand, p. 355, I don't know enough from experience to advocate either single or double walls for outdoor wintering; but I wintered out one single-walled hive last winter, and hope to try more next winter. But I had a story filled with rags over, a story of combs under, and an entrance 12x2. [Get a good double-walled hive, and you will get better results. Our double-walled Dovetailed chaff, of ⅞ lumber, is preferred by us to the single-walled, in our apiary, it is so convenient.—ED.]

THIS TIME it's yourself, Mr. Editor. You say, p. 357, "Almost the only objection against amalgamation is the idea of making the Union international." I've knocked that man of straw down several times, but some one keeps setting it up again. Don't you know that the Union has always been international? At the last election, three Canadians got a total of 21 votes. Stop talking about the Union *remaining* national. [The organization is named the National Bee-keepers' Union, and is incorporated at Chicago. It is international in its benefits; but to my way of thinking it is national in its character and name.—ED.]

On page 259 W. G. Hewes gives us his ideas as to the causes of the low prices of honey in California. He not only questions Rambler's figures and statements, but actually those of Skylark himself. Mr. Editor, if you permit this to go on unchecked, Skylark's word will soon be no better than that of anybody else. The idea that there is no "water-white" honey! Why, it has been a standard grade of honey here for years, and will continue so for all time to come.

But here is a huge joke—so high that I can hardly climb over it—a Mason jar to test the color of honey! Why, even *water* looks green in a Mason jar. But friend Hewes will not get "water white" from his old brood-combs that he asks us to shake to prove there is no such honey. It must come from combs that never hatched a bee, and that were never polluted with pollen. The whole aim of the article is to show that J. H. Rambler and Skylark have wrecked the California honey market (which, according to another part of the article, is not wrecked at all); one by overestimating the crop, and the other by speaking of pure black-sage honey as "water white." Now, that is just my idea. I knew, and Rambler knows, that we are both great men; but I didn't know that the whole world knew it. O Rambler, Rambler! our fame is safe—they know it up—away up—at Newhall! Now we can put up or pull down prices as we please. Rambler cries out, "Honey is selling at 3 cents;" Skylar kechoes back, "Water-white!" O Skylark, J. H., and Rambler! you are a reckless trio. You can wreck any thing, from a hairpin to a honey-market, and not half try.

AN OPEN LETTER TO DR. MILLER.

Dear Doctor:—As you seem to be, at the present time, a sort of target for "open letters," I want to put in my "jaw" and shoot at you too. But indeed and indeed, dear doctor, I will pull the trigger easy, so I will not hurt you. Do you think you will come out victorious in that tilt you are having with Rambler as to who owns Chicago? It is just as much *our* Chicago as it is yours, and more too. Haven't we built it up with our honey? What! Give up Chicago? Not for millions. Why, I would abandon my breakfast any day, and never eat another bite again—never, never (till dinner-time), rather than give up Chicago.

It is true, as Doolittle tells you (*A. B. J.*, 255), you have helped to build up bee-keeping in

California through your articles, and by answering questions; and now, O doctor! I write this in grief and tears—just because we produce tons of honey to your hundreds of pounds, you want to kick us out of the bosom of your family—apicultural family I mean—without pity and without remorse.

Dear, dear doctor, have you no tender recollections of our childhood in apiculture, when we sat at your feet—the purity and innocence of childhood shining in our eyes—and learned the lessons of wisdom from your lips? O blessed lessons! O dreams of golden treasures, flowing down from the mountains, actually realized! What good are you, anyhow, when our master will not allow us to sell you for spot cash? Barred out of Chicago! barred out of the northern markets by the very master that taught us to handle the tools and to get the product—always assuring us there was a way to sell it. If you, dear doctor, have not yet got a mortgage on Europe we might send it there.

Yours truly,

SKYLARK.

P. S.—I am very sorry to tell you, doctor, that you will have no competition to fight this year. California will not produce half a crop, and I doubt very much whether it will go above a third. You can now get out your roosters and banners, and go on a triumphal torchlight procession as soon as you please.

That's a splendid idea laid down by Skylark. Every bee-keeper north, south, east, west, join the Exchange. Just think of the sinews of war *that* would give us. It is evident our Exchange will have ample opportunity to grow this season, for the prospects for a large shipment of honey grow beautifully less as the months advance and the rains fail to refresh the flowers.

W. T. Richardson, president of the California Bee-keepers' Exchange, while stepping from a moving train at Santa Paula, on the evening of the 10th of April, was thrown so violently to the ground as to be rendered unconscious for several minutes. His condition has been extremely critical for several days, and at this writing he is not considered wholly out of danger.

I note what Bro. Hewes says about California honey-yields, on page 259. It is a lamentable fact that our estimates can not be more correct. The only way to estimate a yield is to go to the railroad statistics and calculate from shipments. That would be very unreliable for the coming season, for much honey has been held over that would be classed as the crop for 1896. There was but little held over from 1894, and there is no way to even up the hold-over or get at the amount held here for home consumption, except by a rough estimate.

Now, while I am not so sure about honey-yields I am much more so about the number of bee-keepers. While, as Mr. Hewes remarks, Ventura Co. has but 58 bee-keepers, San Bernardino has something over 100; and those large counties of Los Angeles, Riverside, and San Diego, have several hundred. I have a list of over 600, and know I have not all of them. There are over 1000 in Southern California, and I will undertake to prove it by showing the names before the year is out.

One of the most hopeful signs of the times in beedom is the present wide discussion in relation to the marketing of honey. The appliances for producing honey have been improved to the very point of perfection—so near to it that such good authority as the *Review* thinks there will be no more great inventions in that direction. But there is plenty of room in the direction of marketing the product. That field has been neglected too long, and in this feature we expect to see the great improvements within the next few years.

That article in Harper's, about bees, caused a muscular contraction of the muscles of my pedal apparatus. Of course, I would not kick the lady writer of the article; but I do kick when people write to me asking if I am the Martin in question—just as though a young man like myself should use a cane, and gracefully spread that and my hat on the floor, and rhapsodize about bees! Inasmuch as the incident happened in the Sespe country, I am inclined to think that Ninetta meant to portray that bee-man McIntyre.

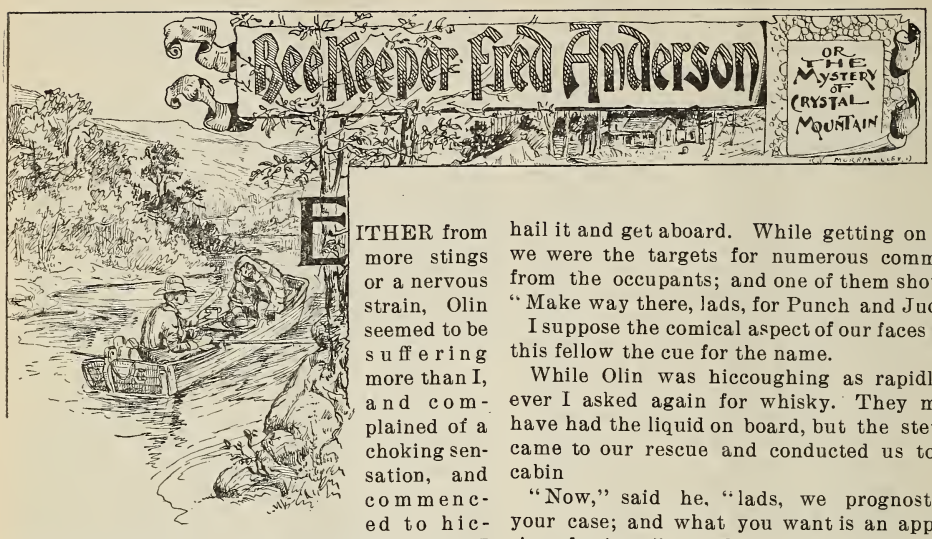
A. D. D. Wood, a long-geared individual, recently from Lansing, Mich., and now stopping in Los Angeles, has taken a violent fever for rearing queens on Catalina Island. This island is located 25 miles from the California coast; and, being a famous resort, it is the only island visited daily by steamers. Its accessibility to man and inaccessibility to bees make a desirable place to rear queens and have them fertilized by selected drones. Mr. Wood has secured the sole right to the island for this purpose. We shall watch his progress with interest.

DR. MILLER'S STRAWS LIKE THE STRAW FED TO THE IRISHMAN'S HORSE.

Dr. Miller's "Straws" remind me of those fed to the Irishman's horse. The horse was fat and sleek, and he declared he fed him nothing but straw, and emphasized the statement by saying, "It wasn't half thrashed either." Grain in it.

DUDLEY W. ADAMS.

Tangerine, Fla.



EITHER from more stings or a nervous strain, Olin seemed to be suffering more than I, and complained of a choking sensation, and commenced to hiccough, and kept it up so persistently that I became alarmed. I had read of deaths caused by bee-stings, and didn't know but this was a premonitory sign. The bees had withdrawn their forces, and I was able to get our traps to the boat. We had noticed a cabin across the river, and, after much labor and pain, Olin still hiccoughing, I pushed the boat up to the little wharf. A rough looking old fellow came from the cabin, and, from Olin's hiccoughing and our swelled faces, seemed to take in the situation at once; and before I could get at him with a question he shouted, "Hey, youngsters, yer in a pooty fix, I reckon! ben meddlin' with them no-count bees—ha, ha! yer got the yere-marks, eye-marks, an' nose-marks; never knowed them bees to fail putting on the marks. Now don't try to 'splain matters, but jest git right down the river to Coloosa or you're gonners. Them bees gits their livin' mostly from rattleweed; and everybody that has any thing tu du with them gits rattled, shore. The owner got rattled hisself, and drownded off Lone Tree Point."

I had read somewhere that whisky was a sure cure for bad cases of stings, and now shouted to the old fellow, asking him if he had whisky.

"Whisky?" said he; "why, young feller, you make my mouth water. Whisky? no, sir; if I should leave a drop in the house the old woman'd drink it. I make it a roole never to leave any. It's a mighty unhealthy place for whisky round this yere place, an' various other things; so yer had better pull right away, youngsters. and get down the river;" and, without further parley, I pulled out into the current.

It very luckily. perhaps I should say providentially, happened that one of the little steamers rounded the point above us, as we had gotten well into the current, and we were glad to hail it and get aboard. While getting on deck we were the targets for numerous comments from the occupants; and one of them shouted, "Make way there, lads, for Punch and Judy."

I suppose the comical aspect of our faces gave this fellow the cue for the name.

While Olin was hiccoughing as rapidly as ever I asked again for whisky. They might have had the liquid on board, but the steward came to our rescue and conducted us to the cabin

"Now," said he, "lads, we prognosticate your case; and what you want is an application of onions;" and from that moment it was onions externally and onions internally; onions raw, onions boiled, onion poultices, onion syrup. It was "Punch, will you have this?" or, "Judy, will you have that?" There were over twenty young men on board, native sons, all on a pleasure-excursion, and they were so leisurely in their traveling that it was three days before we arrived in Sacramento. Suffice it to say, the native sons treated us royally; and when we landed, Olin hiccoughed only occasionally, and, thanks to the steward and the onions, our swelled features were much reduced.

Our respective families were interested to learn all of the incidents of our mishap, and we can now laugh with them over the various incidents. Olin will not soon hear the last of his honey-for-breakfast scheme, and I shall long remember my Sunday and the snags on the Sacramento.

"You surely did have a wonderful experience," said Mr. Hopson. "Your proposed quiet Sunday was rudely and cruelly broken; but there was a cause in your own actions. I will defer my comments until next Sunday; then I will give a general talk upon snags, and how to avoid them; and now good-day to you until I see you again."

At the commencement of Fisk's rehearsal of his river adventure, a young man came in quietly and sat down at one of the reading-tables; and, though his eyes were directed into a magazine, his ears were evidently taking in all that James Fiske was relating; and when the latter was about to take his departure the young man stepped up to him and said, "I beg your pardon for listening to your story. I was much interested, for I am a practical bee-keeper. My name is Fred Anderson. I am recently from the East, and I wish to find parties who make bee-management their business. Are

there any apiaries near those localities you visited?"

"I should be pleased to aid you, Mr. Anderson," said James; "but I am not posted in bee-matters. The experience I have described is the first I have had with bees, and I hope it is the last—at least, I shall keep a good distance from the little rascals hereafter." Turning to the Secretary he said, "Mr. Hopson, you are well acquainted with men and various features

"MAKE WAY THERE, LADS, FOR PUNCH AND JUDY!"

of the river; perhaps you can put this gentleman on the track—or, I should say, the scent—of—of—what d'y' call them?—Ap—Apis mendacious."

"Ha, ha! *mendacious*, sure enough," said Mr. Hopson, "but it's Apis mellifica, or honey-bee."

"Thank you," said James; "but I think my rendering of the name most appropriate. And, Mr. Anderson, beware of the mendacious rattle-weed country. Good-by, and good luck to you;" and James withdrew.

Mr. Hopson, addressing himself to his new acquaintance, said. "While I am not much better posted than my friend Fiske in regard to bees, I think I can put you in the way of finding them if there are any up the river. Mr. Royal Smith, postmaster at Boggs' Landing, knows all about the various industries along the river; and a letter to him will solve the problem for you. You can sit right down here at our writing-table. If you write your letter immediately it will get off in less than an hour."

Fred expressed his thanks to the accommodating secretary, and immediately indicted the following letter:

Sacramento, Cal., May 6, 1889.

Mr. Royal Smith, P. M.,
Boggs' Landing, Colusa Co., Cal.

Dear Sir:—The secretary of the Y. M. C. A. of this city refers me to you for information in relation to bees and bee-ranches in your vicinity. Can you inform me if there are any colonies of bees for sale or to rent? About the number, style of hives, and kind of bees, any information you can give will be thankfully received. Inclosed find stamped addressed envelope. Yours truly,

FRED ANDERSON.

After the lapse of three days Fred was very much on the lookout for an answer to his letter. On the morning of the fourth day the postman put a letter into his hands, the perusal of which caused him some little perplexity. It ran as follows:

Boggs, Cal., May 8, 1889.

Mr. Fred Anderson,
Sacramento, Cal.

Dear Sir:—Your letter of inquiry about bees is at hand. I would say that Alph Ghering, a few miles up the river, is the only bee-owner I know of. He has a right smart lot of them. Making a rough guess, I should say there is over a million. I am not much posted in the terms applied to hives, but I should call Ghering's a congregational hive; and when I was there a few days ago they were having congregational singing and a revival (Alph called it swarming). As to the breed, there's where you have me; for the life of me I can't say whether they are Durham, Ayershire, Duroc, Langshans, or spitz poodles; but this I do know, they have no kinks in their tails, and they are chock full of alacrity, and the whole million or more know how to fire themselves against a fellow's nose with the precision of a well-regulated bullet. They hit where it hurts, every time. I have been there, and know. That is all I know about bees. I have no doubt you can make favorable terms with Alph Ghering; he is a mild-mannered man, and has no women to interfere with the free swing of his judgment.

Having been stung a few times I subscribe myself fraternally Yours,

ROYAL SMITH, P. M.

SUPPLYING THE HOME MARKET.

FURTHER SUGGESTIONS ON HOW TO DRUM UP THE GROCERY TRADE: CONTINUED FROM LAST ISSUE.

By F. A. Snell.

As soon as circumstances will permit, after my visit to the town formerly mentioned I get several more crates ready for market. A neat

label is always placed on the end of each crate of comb honey, and on each can or pail of extracted honey. This is an excellent advertisement for the apiarist who produces a good article of honey. At different times I have received orders from distant parties who had seen my honey in the stores, and gained my address by seeing my label on my honey-packages. I have my extracted honey put up in 3, 5, and 10 lb. cans, or in pails holding 1½, 3, 6, 9, or 12 lbs., having raised covers. I have found it better to have my comb honey put up in cases of different sizes holding 8, 12, 16, 24, and 32 boxes each, of the 4¼ size.

A day is set to visit town No. 2. The crates of comb honey of the different sizes, and the extracted, are loaded into my buggy, and the start is made. The comb honey is noticed by those whom I meet, and occasionally I am motioned to stop. Inquiry is made as to price of the honey, the amount in a case; or, "What have you in the cans or pails?" I inform him, letting him sample the extracted. In many instances of this kind I have sold such a crate, can, or pail of honey.

I pass on, reach the town, and commence the work of selling. I call on the nearest grocer. I salute him, and he returns the same. If I find him at leisure I introduce myself and business, stating that I am a bee-keeper, and have some honey with me of which I should be glad to have him see a sample. A case and a pail or can is brought in. I place the comb honey where it may be readily seen through the glass, which should be clean and clear. I give him a few seconds to look at it. I then raise the cover, showing him the importance of keeping flies and dust out as the light cover does. I remove a few sections for his inspection; and if others are standing by I try to interest them. I then show him the extracted honey, and request him to sample it. I am asked how it is secured. "Isn't it strained?" I explain that it is taken with a machine, or thrown from the combs by centrifugal force, and is far better than strained honey, and give the reason why it is. I give the grocer my price on the comb, and state that I have smaller cases which are readily taken for family use, naming the number of boxes in each. He decides to take one or two of each size. I give the price of that in the pails or cans. He is surprised at the lower price per pound. I give the reasons why it does not cost so much to produce it. Formerly it cost more than now. I dispose of some of this to him also. Settlement is made, I usually taking a little in trade. I tell him that I shall probably be in town with more honey, say in from four to five weeks, and I should like to supply him with what he may need. I also say to him that, if he needs more before that time, he may drop me a card, stating what is needed. I thank him for his patronage, and pass on.

The next reliable grocer is called on. He has a little honey in chunks on a platter in his showcase. I tell him that I am a bee-keeper, and have some honey with me, and should like to have him see it. I bring in a case of the comb and a can of the extracted. He is pleased with the looks of the comb honey, and inquires the price. I give it. He thinks it almost too high, and shows me the honey in the platter, and tells how cheap he bought it. I state that I do not like to handle my honey in such a mussy shape. It is so it can not be done up, and nearly half drained from the comb; can be carried only in a pail or dish, and I believe he can sell twenty pounds of my honey to one pound in the poor shape. If some of his customers want some honey that may be sold cheaper, my canned honey will please them. I have him sample it, stating that it is all ready to hand over to his customers. The result is, I sell him two or three cases of the comb, and several cans. I tell him I am confident that he will find what I have said to be true; that most people are willing to pay for and take nicely put-up honey at a fair price. I ask for his patronage in the future; settle up, and take my leave. Dinner for myself and horse is secured, after which I return home, having supplied the leading grocers of the town with honey.

Milledgeville, Ill.

THE RAILEY SUPER.

A SUPER FOR HOLDING SECTIONS WITHOUT T TINS, SECTION-HOLDERS, OR SUPERS; ITS CONVENIENCE AS COMPARED WITH THE OTHER DEVICES.

By F. G. Railey.

So many objections have been cited recently by many prominent and practical bee-keepers in several different journals, against section-holders, wide frames, and T tins (loose and permanent), that I have wondered if it has not occurred to these gentlemen that all of these things can be dispensed with and a much simpler, and, in my judgment, more perfect, arrangement, used to hold sections in the super. I use thumb screws with a follower in the side and at end of super. I use the Dovetail super, made originally for section-holders. On one side, 4½ in. from the ends, I put in two thumb-screws. I put two more thumb-screws in one end of the super, one 4 in. from the *side* which has the thumb-screws in it, the other just 3 in. from the other side, or about midway between the corner and the cut-out for the hand-hold. Now dress the super down to a depth of $4\frac{9}{16}$. This gives a bee-space (the correct one, I think) of $\frac{5}{16}$ above the sections, where they are just even with the lower edge. Now place your super, without any tins anywhere about it, on a flat hive-top or some other level surface. If your super, like mine, was made for section-holders, cut two lit-

tle board followers, ⅜x4½x11. They will thus, you see, be just as wide as the sections are high when in place, and a little *shorter* than six sections as they are placed across the super. Drop these followers into the ends of your super, one against the screws, the other at the opposite end, seeing that *their ends* are pushed back close against the inside of super, opposite the side screws. Now put in your sections and drop in the usual follower on the *side*, dressed to just 4¼ inches in width and a bee-space *short* at the end next to the *end super-screws*. Now turn up your side-screws sufficiently to get the sections pressed well against the opposite side, then turn up your end screws until you can turn no more with your fingers, and do the same to the side screws, at the same time pressing the tops of sections all into place evenly. If separators are used (I never use more than two), cut them just the length of your sections when well pressed together, or scant 17 inches.

You now have my ideal of a super. Every section is squared up and held firmly in place from every direction. If reversing is practiced, you have but to turn your super over, using the board hereinafter described, to prevent mashing bees. Loosen the screws, let sections and followers (I prefer the latter all loose) drop down, and you have your bee-space on top once more. For freedom from propolis I have never seen any arrangement like it. My boys always shout when they come to what they call a Railey super in cleaning up the sections for market—no T tins, nothing in the way of a wholesale scraping of both top and bottom of sections before the screws are loosened, thus removing the small amount of propolis found there. Then loosen the screws, and the sections separate in all directions easily, as soon as the super is lifted off.

When I think of having to handle and clean and take care of, and pay for six section-holders or six wide frames, or even five tins, as compared with this arrangement, I have a feeling of joyful relief. Somebody says, "Why, you have two or three board followers to take care of and clean." Well, they are of such shape as to be much more easily cleaned and cared for than the other articles, and cheaper. Then if you will think of their position in the super you will see that there will be but little cleaning to do to them. The bees do not get much at the end one.

Another may object, "You can not take the sections out as they are filled *while on the hive*. If you loosen the screws, of course the sections would drop into the brood-frames or honey-board below." I answer, this is the only objection which has troubled me. My remedy is to have a board constructed like a bee-escape (the latter can be utilized), just the size of the super, with a strip ¼ x ⅜ tacked around the outer edge as a rim; then five more of these ¼ x ⅜ strips tacked across the board just where the rows of sections come when the super is raised and set upon this board. When any sections are sealed, simply raise the super, slip this board under, and even the corners, as when you put an escape under. Then loosen your screws and see how much more nicely any section can be removed than with any other arrangement—no bees hurt, no propolis to necessitate prying and wrenching. Each section stands loose in its place ready to be picked up. Friends, try it.

Glasgow, Ky.

[It was Oliver Foster, I think, who devised, some ten years ago, a super for holding up sections by side and end compression; but of late years we have heard nothing about it. But his method of producing compression was not by thumb-screws, but by a sort of clamps at diagonally opposite corners, the super itself being halved through those corners. It is quite possible that, by the help of thumb-screws, the sections may be so securely held as to stay in place. But I am rather of the opinion that, for very dry climates, like that of California, for instance, or climates of the other extreme, such as, for instance, those of Florida and England, such a super would not answer. In the first-mentioned localities, the sections would be liable to shrink a trifle after being compressed, and drop down. In the others, the dampness would cause them to swell and buckle up. I may be mistaken, but that would be my impression. If Oliver Foster has abandoned his original super, perhaps he can tell us the reasons why.

But there is no denying the fact that such a super could be filled and emptied much more easily than any other form; and, too, we have the further advantage that such sections would be brought much nearer to the brood-nest. When Mr. W. K. Ball was here he expressed a desire for a super that would allow the sections to come up to the brood-frames, within a bee-space. He was then using T tins; but I presume he would like the Railey super better yet, providing there would be no danger from shrinkage, thus allowing the sections to drop down and destroy bee-spaces.—ED.]

FROM THE ORANGE-GROVES OF FLORIDA.

FOUL BROOD; KIND WORDS FOR THE A. I. ROOT COMPANY.

By W. S. Hart.

Mr. Root:—Your card of a recent date, giving notice that you have placed me on your list of complimentary subscribers to your journal for the ensuing year, came duly to hand, and I thank you for this added evidence of your good will. GLEANINGS, long years ago, became indispensable to me; and I believe that, through me, it has become the same to many others. It is always a pleasure to me to speak a good word for the A. I. Root Co. and its wares, for the two reasons that I like the persons composing it; and because, second, whatever they send out is of the highest type of its kind, or else sold for the lowest price of any of its quality.

I have delayed acknowledgment, in the hope that I might send other matter of value with

the letter. I hoped to give some information of value to my brother bee-keepers in reference to the treatment of foul brood. I had no new remedy in mind, but hoped to add conclusive evidence as to the efficacy of some of the supposed cures now before the world. I regret to say that I have very little of value to offer, up to this date; and the present status of the trouble in my apiary and its surroundings is of a discouraging nature. I have already lost some 20 colonies, and have several more that are quite weak from the various experiences that I have put them through. I have tried lysol and several other chemicals, without success. I have fed all my apiary with medicated feed (using lysol principally) as a preventive, repeatedly; but the disease keeps reappearing. By the McEvoy method I have succeeded in effecting cures; but many colonies so treated would show the disease again before much brood could be raised; and a repetition of the treatment would so weaken them that several would have to be united to give them strength to survive.

I still feel quite confident that I could stamp out the trouble if it were confined to my apiary alone; but a neighbor, a Manxman, one possessed of all the peculiarities of the natives of the Isle of Man, has or had 90 colonies near by that he has not examined for five months, although he owns that there was something wrong with them the last time he did so. Florida has no foul-brood inspector; so, though his apiary is probably a putrid mass of infection, it can not be exterminated either by law or persuasion. The disease alone can do it. Under these conditions I see but little hope of ridding this section of the dread disease; and all efforts to test remedies must almost necessarily prove useless. Among my many reasons for regretting this is the fact that yourselves and others have sent me chemicals to test on the disease, hoping for valuable results, and these hopes must be disappointed.

AN INTERESTING CASE OF A CURE OF RHEUMATISM, BY BEE-STINGS.

I am happy to report, however, that I seem to have been successful, as a self appointed physician, in one direction that will interest many bee-keepers. I inclose a short statement of the case, from the pen of the patient, and would add, to what is therein stated, the following facts: Mr. Hendricksen is a well-educated young Dane, a man of culture and bright intellect. His sufferings from rheumatism for the first four weeks here excited the sympathy of all who met him. Being well versed in chemistry, he was fully posted as to the medicines that had been prescribed, none of which had given him much relief; and being of an active, joyous disposition, he was not as prudent as he might have been, and his trouble was becoming worse all the time. It was with little faith that I suggested bee-stings as a remedy; and, though he was interested at once, it was not until I loaned him printed matter referring to it that he became fully convinced that there might be real virtue in it. After suffering severely one morning he applied the stings to his aching leg at about 10 A.M. The benefit was apparent at once, and that night he got his first good sleep in a long time. On the morning of the third or fourth day some of the boarders at the Bay View were astonished to see him out on the grounds at an early hour in the morning, alternately leaping and kicking out in great shape. Not knowing what in the world was the cause of such gymnastics, one cried out to him to know what was the matter, and found that he was simply trying his legs to see if he could find any rheumatism left in them. It is now some weeks since then, and he is still apparently cured, though it has not been his fault that he is so, as he has been almost constantly on the move, either upon the river or upon the shore, and often with wet feet and other conditions existing that would naturally bring the trouble back. He starts for the North this morning, carrying with him an active interest in "the little busy bee," and the hearty congratulations of the many friends he has made here, all of whom know of and are astonished at the wonderful cure. It may seem unusual that there is no "one dollar a bottle" to come in here somewhere, or some expensive recipe to be filled; but it is an honest, sober fact, that Florida climate is not necessarily expensive; and even I, the writer, will furnish the bee-stings, free of cost, to all the patients that you will send to the Bay View House next winter, though, having no ax of any kind to grind, there is no $1000 reward offered for a case I can not cure.

W. S. HART.

Hawks Park, Fla., Apr. 17, 1896.

[The following is the statement referred to.—ED.]

BEE-STINGS A CURE FOR RHEUMATISM.

In the summer of 1895 I felt, occasionally, pain in one leg; but, not being unable to attend to business, I took no further notice of the case until the middle of January, 1896, when the pain suddenly became so intense that I was obliged to consult a physician. He pronounced the case to be sciatica, and prescribed a treatment of massage, which did at the time possibly more harm than good. Another physician tried various remedies, but failed, and finally advised me to change climate. I had then been confined to my bed two weeks, and was at the time unable to move about without a cane, and suffered intense pain.

The first of February I went to Florida, and came by mere chance to Hawks Park, where I made the acquaintance of the noted orange-grower and apiarist, W. S. Hart. He furnished me with reading-matter from his well-filled library, and, among the interesting books, were eight or ten volumes of GLEANINGS, some of them dark with age, where I found several articles on bee-stings and rheumatism, and concluded to try the experiment. I had then

been in Florida more than a month without deriving any benefit from either climate or medicine. The first day I had six bees applied to the leg along the sciatic nerve, and felt instant relief. The second day I applied seven bees; and two days after, I was able to walk straight without a cane, and have felt no pains since.

In applying the bees, take them by the thorax and put them on the desired spot. Leave the sting about five minutes, or until all the poison is extracted.

Chicago, Apr. 20. H. C. HENDRICKSEN.

[Your experience is almost identically ours on the matter of curing foul brood. The McEvoy method is good so far as it goes; but Mr. McEvoy does not think the disinfecting of the hives is necessary; but we found that colonies shaken on to frames of foundation back into the old hives, without disinfection, were quite likely to have the disease again; but when they were treated in new hives, or hives that had been boiled, the cure was permanent.

With regard to rheumatism, in many cases bee-stings seem to work quite a remarkable cure, while in others no effect is experienced; but we should not forget that there are different kinds of rheumatism. Perhaps some of the medical men in our ranks can enlighten us — particularly as to what kinds of the disease are more susceptible to the effects of the bee-sting poison.—ED.]

THE NEW WEED-PROCESS FOUNDATION.

FURTHER TESTS CONFIRM PREVIOUS TESTS; FIVE TIMES STRONGER THAN THE OLD DIPPED FOUNDATION.

By O. O. Poppleton.

Our honey season is a month later than usual, so my last experiments with foundation are also late, but are finished. The later ones all confirm the first ones. I gave all the light and medium brood foundation I had left to a neighbor, Mr. B. Parks, with proper instructions, and he reports to me that the average stretch or sag of the old-method samples aggregated just five times as much as did the new-method ones, being almost exactly the same as in my tests with the light weight previously reported.

My own later tests were made with the heavy makes, which were alternated in hives into which heavy prime swarms were run. As the weather was quite warm at the time, and a fair flow of honey, this made a severe test of the foundation. All the sheets made by the old method were stretched some—not very seriously so, but yet so as to be plainly noticed at a glance, while it was absolutely impossible to see a particle of stretch in a single one of the new-method ones. The difference was so plain that a novice could have picked out each kind by itself at a single glance.

I could see by the age of the brood in each that the queen had first deposited eggs in one of the new foundations, then skipped one of the old ones and used another new one before using the old one between them. This looks as if the new was worked out somewhat the quicker; but, of course, one instance of this kind proves nothing. Aside from this I noticed nothing to show any preference of the bees for either. So far as such experiments can prove any thing they plainly show a decided superiority of foundation made by the new method compared with that made by the old, and that your claims of such superiority were quite well founded.

Our tests of the thin foundation for surplus have not shown any marked difference between the two kinds. Even were we fitted with the right appliances for such a test, I doubt the practical value of such tests between these two makes as were made by Mr. Taylor between the different kinds of thin foundation. After using all the different kinds of foundation made, from the first made by the inventor, some 25 years ago, including milled, pressed, and molded, I had reached the same conclusion that Mr. Taylor did from his experiments; viz., that foundation made by the Given press would be worked out by the bees a trifle quicker than any made on mills. Molded foundation was fully equal to Given—better, if any thing.

I differ with many bee-keepers in thinking that the points brought out by Mr. Taylor's experiments are, while interesting, of very little practical importance. The bees, having their choice of different kinds of foundation in one section-case, of course commenced first on the kind they liked best; and when all were drawn out, these were a trifle thicker — that is, longer cells — and held the most honey. If all the sections had had foundation of one kind, all would have been commenced more alike — been more uniform in thickness, and been more even in weight; and, in most cases, all would be finished in nearly the same time without reference to what kind of foundation was used. Whenever bees are very reluctant to commence work in surplus-cases the quality of foundation used may be an important factor; but I doubt whether it amounts to much in use in the brood-nest. Whenever conditions are right for bees to draw out foundation in brood-frames (and foundation is seldom given to them for that purpose at any other time) they will draw out foundation of any kind with almost equal promptness. I have used all kinds of foundation — that with high side walls, with no walls at all; that with round cells, with natural-shaped cells—pressed, milled, molded—that newly made, that fastened in frames and hung in the light for months, and, so far as readiness of being worked out is concerned, I have ceased to think there is much practical difference. What has been a serious trouble with all kinds of foundation is the tendency to sag or stretch, causing elongated cells, and bulged, ill-shaped, and useless combs; and any thing that will tend to obviate this trouble is of much practical value.

I use deep frames, 12 x 12 in., and, of course, am troubled more with stretched foundation

than if I used shallower frames. Because of the great difficulty of getting foundation reasonably free from this fault I have, for a dozen years back, made and used mostly my own foundation on plaster molds, by Oliver Foster's methods. My experiments have satisfied me so fully that the new foundation is all right that I have decided to make no more molded. I confess that, at first, I took no stock in your claim for the superiority of the new foundation; but rigid tests have shown otherwise.

Stuart, Fla.

[Previous to this year some very satisfactory tests were made, the result of which showed that the new-process foundation was in every way superior to the old made from dipped sheets. But we desired to have it put to a more severe test yet; and, as we have previously advised our readers, Mr. Poppleton, a very careful and intelligent bee-keeper, was employed to make some further tests; for if there is any place in the United States where foundation is liable to stretch, it is in Florida with its hot sun. As previously announced, the first preliminary tests by Mr. Poppleton showed that the new Weed process was five times stronger than the old dipped foundation. The foregoing is the result of more elaborate experiments during hotter weather, and fully confirms the previous tests.

Some of our friends could not understand why the new foundation should be tougher, and yet more easily worked out by the bees. There is something parodoxical, it is true, in the terms, but actual tests show that it doesn't stretch like the old, and is more quickly worked by the bees.

Mr. Poppleton is to continue experimenting for us, and later on we shall have further reports. In the mean time do not forget that Mr. Poppleten says he at first took no stock in our claims as to the superiority of the new foundation; but his own experiments have convinced him that we were right. And observe, also, that the new foundation can be used in lieu of the old molded wax with much heavier sheets.

And, again, it seems evident that much lighter grades of foundation can be used in the hive. The consequence is, for the same money more sheets of foundation can be purchased, of this new process; and these lighter sheets will do the work of the old heavier sheets of dipped wax. We are not content, however, to let the matter stand where it is. We are using our "best brains" to improve what may now seem perfection itself.—ED.]

LONG-TONGUED BEES.

THE LARGE FOUNDATION WITH CELLS 4½ TO THE INCH.

By Dr. C. C. Miller.

Just how many years ago it is I don't know, but I think it was during the first few years that foundation was made, A. I. Root conceived the idea of making foundation with cells of intermediate size between worker and drone size. I never knew what his object was, but I know he got some pretty hard raps for it, for the bees didn't seem to know whether it was meant for drones or workers, and used it sometimes for one and sometimes for the other. At any rate, it was moved and unanimously carried that he mustn't make foundation with cells of any different size from the size adopted already by the bees. Having voted in the affirmative, I now move a reconsideration.

For some time the French have been experimenting in the direction of having bees with longer tongues, and for a good while I was under the impression that it was merely by trying to breed constantly from the bees with longest tongues that the object was to be gained—a mistake that may be excused on my part, because the same mistake was made among French bee-keepers themselves. Instead of that the plan is to try to raise bees with longer tongues, not by merely stretching the tongues, but by increasing the size of the bee throughout, trusting that, as the size of the bee increases, the size of the tongue will increase in proportion.

The increase of size is sought to be gained by using foundation with cells larger than the normal size, and the largest bees are selected to breed from, the glossometer being used to measure the tongues so as to make the selection. As I have already mentioned, M. Legros has made a notable advance in the matter, the glossometer of his invention being one of the best; but he disclaims the idea that his gain in the size of bees, and consequently in the length of tongues, is by means of the glossometer alone. That's merely used as a test in making selections, the gain in size being made by using larger-sized cells.

If A. I. Root was ahead of the times, and was seeking to increase the size of bees by means of larger cells, he made the mistake of making too violent a break in the matter. The better plan seems to be to increase the cells gradually. At any rate, I see in *Le Progres Apicole* for January that M. Mees is to have foundation-machines to turn out foundation with cells of three different sizes, 26 5, 25.8, and 24.2 cells to the inch. It will be remembered, that the normal size is about 28 to the inch.

One would hardly think, however, that it was necessary to go so gradually in the matter. On the surface it would seem that all that's necessary is to use the largest size that will satisfy the bees, and not be used too largely for rearing drones. Although they may occasionally rear workers in drone-cells, they don't appear to like too much drone comb. As an experiment I once gave a colony pretty much all drone comb. They showed their disapproval by swarming out. I think the compromise foundation made by A. I. Root was somewhere in the neighborhood of 23 to the inch. Possibly 24 to the inch might satisfy the bees to commence on. However, those Frenchmen probably know a good deal better what they're about than I do.

It may be remembered that Dr. J. P. Mur-

dock succeeded in getting bees of unusual size. If the attempt is to be made to breed for size it would be a great gain to have his strain of bees to commence with. He sent me some of the bees, and also samples of comb about which there could be no question. Without taking time to hunt up the report I made about it in GLEANINGS, I remember that the cells were about medium between drone and worker size, some of them larger, and a few I think just about four to the inch. This comb was, of course, built by the bees without any foundation. I believe he made no mention of having made any gain through larger-sized cells, but mainly through selection of larger drones and some special feeding of the drones while in the larval state. At any rate he made an advance in size that was decisive, and I think it was ahead of any thing yet accomplished in France.

It is well known that bees of reduced size can be raised by having the size of cells reduced. That the opposite rule would work doesn't necessarily follow. But the possibility is worth trying for.

The question may be asked, What's the good of bigger bees? I don't know of any except just one thing—they could work on red clover. But it is possible there are other flowers besides red clover that longer tongues could reach.

IS REDUCTION OF FEES "CHEAP JOHN" BUSINESS?

On page 52, Rev. W. F. Clarke maintains his position that he doesn't want to belong to an organization that doesn't have a good-sized annual fee; thinks reducing the fee would diminish rather than increase the membership; doesn't believe in the "cheap John" style of doing business. I think $1.00 has always been the annual fee for membership in the North American. Do you believe, Mr. Clarke, that, if the fee were increased to $1.50 or $2.00, there would be a gain of a single member? According to your reasoning there ought to be; for if the value of membership were measured exactly by the cost, then a $2.00 membership would be better than one costing only half as much.

I don't believe in the "cheap John" style of doing business any more than you do. But that means getting things for less than the regular price with still less than the regular value. But I do believe in getting full value for less money; and I count as a public benefactor the man who can produce for 25 cents what has previously cost a dollar. And I think people have too good sense to think the value less because the price has been reduced. Take as an illustration the matter of newspapers. The Chicago *Record* started as a one-cent paper. There were other papers in Chicago that sold for two or three times as much. Did people prefer the higher-priced papers? You, perhaps, would have said, "There's not much chance for any great worth there. The miserable pittance of one cent! I'll buy the paper with bigger price." But the public didn't talk that way. It said by actions if not always in words, "There's a 12-page paper for a cent. It has the freshest and the fullest news to be had, and, withal, the most reliable. What a blessing that they are smart enough to afford it for one cent!" And as a result, every one of the great Chicago dailies had to come down in price to one cent. Neither do they give cheap service. In no place in the world is more enterprise and brains put into a newspaper. As a further result, the leading dailies of St. Louis made a sudden drop in price from 5 cents to 1 cent. I'm not at all ashamed to say that I read daily a one-cent paper.

It costs more to belong to a bee-keepers' society on this side the ocean than in Europe, but they greatly overshadow us in membership. We've tried the dollar, and we never got the membership. Let's try the quarter-dollar. It may not be out of place to say that the Illinois State Society has practically reduced its annual fee to 25 cents or less, and it never had so large a membership at the dollar price as now.

Marengo, Ill., Feb. 13.

[In times past we have made several foundation-mills for our friends in Germany, having 4½ cells to the inch. Just what they wanted them for we did not know; but it is possible that they desired to get larger bees; but more probably it was because they desired to get a kind of foundation in which the bees would not breed, it being too large for workers and too small for drones. I believe some one has said before (perhaps it was yourself) that a foundation between a drone and worker would be used exclusively for store comb.

We are at present making mills 4½ cells to the inch; and should our friends desire foundation of this kind they can have it at the same price.

LARGER BEES.

Yes, indeed; do we really want them? On pages 315 and 318, Volume II. of Cheshire's "Bees and Bee-keeping," we find:

The last point (size) is one upon which great misapprehension abounds. The idea that it is desirable to increase the dimensions of our bees is all but universal, and, since I have ventured, more than once, to stand alone in condemning it, I must give my reasons for so doing. *Apis dorsata* has been hunted up, although it is known to be a useless savage, simply because it is big, and that by the very persons who claim that the smaller hive bees are the best, in that they give their vote generally to the yellow varieties. Fortunately, it is in the very nature of things impracticable to "hybridize" our hive bees with *dorsata*, over which we may inscribe, "*Requiescat in pace.*"

But it is still necessary to point out that, the smaller the creature, the greater, relatively, are its powers, both for a mechanical and a physiological reason. First, other things being equal, as an animal is enlarged, its weight increases as the cube, and its strength as the square only, of the ratio of the lineal increase.

The botanical reason for desiring no alteration was expounded in Vol. I. Flowers and bees have been constantly interacting. The build of every floret is adapted to that of its fertilizer, and, could we suddenly increase the dimensions of our hive bees, we should throw them out of harmony with the floral world around them, decrease their utility,

by reducing the number of plants they could fertilize, and diminish equally their value as honey-gatherers. Mechanics, physiology, economics, and botany alike, show any craving after mere size to be an ill-considered and unscientific fancy, for which it would be difficult to find even an excuse.

It would seem from this, that, while we might be able to secure larger bees, there would be no practical advantage in them; and I have been wondering whether it would be worth while to the government to import the *Apis dorsata*—a very much larger bee than we have in this country, simply for the purpose of fertilization of blossoms. Would not the size of these bees be out of harmony with the general flora of this country? I believe that no one holds that they would be of any advantage to us practically from a honey point of view. And while I am about it I must say I am not in favor of going to the expense of importing these bees for this reason, and in view of what various correspondents have said.—ED.]

A CRITICISM ON GLEANINGS,

ON THE HOME OF THE HONEY-BEES, ON THE A B C OF BEE CULTURE, AND ON THE ROOT OF ALL.

By J. W. Porter.

The photo-engravings that often illustrate GLEANINGS are good. They will compare favorably in respect to that kind of illustrations with the best periodicals, and are very much in advance of many other features of GLEANINGS. This difference becomes more pronounced when such photo-engravings appear alongside of the rough sketches that attempt to illustrate the notes of Rambler. For further proof of this I will refer to pages 85, 95, and 96 for Feb., 1894. But none of those are quite as hideous as the one on page 753, for Oct., 1894. That picture is more objectionable on account of its being both poor in art and coarse in sentiment. He who attempts to caricature must be a good artist, because it takes a better artist to do that kind of work *secundem artem* than it does to produce real living pictures from nature. Every comic picture must be true to nature, though distorted to homeliness. And then, too, all comic literature, though often dealing with the most ridiculous subjects, is still to be governed by the common rules of decency and propriety. The illustration last mentioned is the first instance, within my observation, that so far violated the rules of common decency as to picture either man or beast in obeying a call of nature (I refer to a case of seasickness).

GLEANINGS is, in some respects, a very peculiar journal. It more closely ingratiates itself into the family circle than almost any other semi-secular paper published. It somehow or other has a fashion of making every subscriber feel that he is a stockholder in the concern, all of which makes it difficult to raise it to the standard of first-class literature; for, how far can an editor allow correspondents, under the influence of friendship, to violate good taste in attempting to say funny things in regard to matters not understood by a majority of the readers, and which, after all, are not so very funny when seen in cold print? Or how far shall a correspondent be allowed to introduce names of friends and relatives where the names of such persons are not germain to the subject? Improprieties of this kind, when practiced by Mr. A. I. Root in his special department, may be admissible, though it is true he says some things that might better be said by his biographer.

But I will return to correspondents. It is not to be supposed that all of the ten or fifteen thousand readers of GLEANINGS are acquainted with Hannah, May, Jose, or Flo; and when the reader is called upon to digress from the subject in hand to take notice of people to whom he has had only a one-sided introduction, he begins to feel that, after all, GLEANINGS is being used as a vehicle in the exchange of bonbons and taffy between a special few. A letter is yet the most inexpensive and decent way of apprising our friends of domestic joys or sorrows. It would not violate good breeding to notify a personal friend by letter that there's a new baby at home.

GLEANINGS is in her twenty-fourth year, and is now in the rich bloom of maturing maidenhood, still bearing clear resemblance to her honest and rugged parent. She survived the crucial period of infantile poverty, and lives an honored goddess whose noble principles are engraved upon every page that bears her signature, and is now entitled to the first place of honor in every home that she visits. If her exalted ambition in infancy made her an expensive burden, she has served to pay the debt, and bless him that begat her, a thousand-fold. Though always with many admirers, she never played the coquette, nor has she ever bartered her honor for selfish gain. If as a teacher of ethics her rule of action is inaccurate she can still say that such teaching is higher than the fetish atmosphere which surrounds her. If the scales in which she has weighed the love or intent of Omnipotence be ever so false, she can still say that they are adjusted by more than an average standard. If to some she seems narrow in her philosophy, she can plead with truth that she is tainted with the corroding poison of an ancestry of idolatrous worshipers of heathen ideas.

I have never read a paragraph in GLEANINGS, coming from the editors, pertaining to matter of a secular nature, that was in the least ambiguous. I am careful of the wording of this, because I shall attempt to show that the same remarks could not in truth be said about the special and ethical side of GLEANINGS. Descriptions of every thing relating to mechanical art, and figures and drafts which are used to illustrate the same, are given to the

readers with the most careful precision. Errors, however, do sometimes occur: but, even admitting this, my faith in the ability and good intent of the editors of GLEANINGS is such that, if they say the measurement of a thing is found to be $\frac{1}{1000}$ of an inch, I should take it for granted that such statement was made on their own authority, and was therefore correct. If, however, I was certain that such statement was made by Ernest, I should not feel quite as certain of the truth as I would did I know that the measurement was made by his father. I have always supposed that one of the leading characteristics of Mr. A. I. Root was his great precision of character, and that his success as a business man related to a certain degree to that quality. But if Ernest has less of that quality than his father has, I for one think none the less of him for that, for he undoubtedly has other traits of character that stand him in lieu of that one.

Careful that its own advertisements shall not mislead or deceive its readers, GLEANINGS as well maintains a watchful eye over the advertisements of others, ever insisting that they shall do likewise. Having kept the golden rule constantly before its readers, GLEANINGS has set the heroic example of reimbursing the losses sustained by others through any fault that could in the remotest degree be charged to that journal. Again, that unerring precision which seems to pervade the Home of the Honey-bee from cellar to attic applies to the very last act in the making of GLEANINGS. The lines of reading are seldom, very seldom, diagonal to the edges of that journal, and I have never seen a poorly bound copy of it. The margin between the center seam and the reading matter is wide enough to permit the journal to be easily held open to view while reading, without exerting any perceptible effort to keep it in position.

Now permit me to introduce to the reader that grand book—a book which, in my estimation, is the crowning glory of all other works of its author—

THE A B C OF BEE CULTURE.

The point is now reached in this criticism where the reader might well assert his right to catechise me as to my ability to do justice to the work in hand; and I think that I can show satisfactorily that I am competent to judge between the good and the poor, and express an intelligent opinion on all matters that pertain to mechanical art, making no claims, however, to any literary ability.

If I was not cradled in a kit of carpenter tools, I believe I came nearer to that fate than most readers of this article. My father was a carpenter, and carpenter tools were my playthings in youth. By the use of tools I managed to earn my living from my fifteenth to my twenty-fifth year, and have always regretted that I was not permitted to spend my life in mechanical labor.

I do not claim that either in the first or last edition of this work the ultimatum has been reached. But I do claim, as to the purposes whereof this book is published, it is the best exponent of the bee-keeping art that has ever been published. It deals with the whole subject, from inception to finale, with such clear and well-worded description, with such painstaking in every detail, and, withal, a uniqueness of manner, that the most ignorant can understand and the wisest may admire. The business and moral character of the author is revealed in almost every paragraph of the work. He who reads this book for the purpose of being instructed can not fail to become immediately interested, and to find his interest awakened into enthusiasm as, one after another, the doors of Nature's laboratory are opened, revealing to him those secrets that he had previously searched for in vain.

I feel confident that the foregoing remark will be objected to by many of the readers of this article. They would inform me that it was not Mr. Root who made the discoveries of the facts found in this work. To such I would reply that I make no claims as to who discovered them.

It has been well said that bees do not make honey, but that they gather it. The same might be as well said of books.

Man does not make the thoughts expressed in books; he borrows most of them, and discovers a few. Books are mainly the picture of the ideas of the author; his ideas are built upon the thought of the past ages. Man can not invent thought; he can, in fact, invent nothing. Man has discovered a few things, yet only a few things; but only a few compared to what will yet be discovered. It seems to me that the greatest of all man's discoveries was the discovery of himself; but this, only in the perfect day and in the order of eternal evolution. Immeasurable seems the trackless entity of space; yet not more immeasurable or unthinkable is space than the innumerable discoveries that will be made by man in the quintillion of centuries that await his coming.

Who, then, can claim originality in this line of thought? Shall it be Aristotle, Dzierzon, Huber, or Von Siebold? Was not the foundation of their thoughts laid by their predecessors? In the fullness of time, Root compiled them for the benefit of man.

In this work the author has been thorough in his treatment of every branch of the subject, from A to Z. It seems to me that this cyclopedia has done more to educate the world on the subject of bees and bee-keeping than all the combined writings on that subject in Christendom.

The author did not lack in mechanical abili-

ty, nor does he seem to lack in words to express his ideas in a way that can be understood by the novice. The ideas in this book, and the idea of making the book, must have taken possession of the author at a time when his whole soul was imbued with the subject. There is nothing in the work, of a mushroom quality. The author may be mushroomy, unphilosophical, and ambiguous in some of his writings; but such do not appear in his writings on practical bee-keeping.

There are other things which, correctly speaking, do not belong to the general scope of this work, that weave themselves through the warp and woof of it. I refer now to the moral, the industrial, and the economic teachings. The reader may not at first sight once think that they were placed there for his benefit, for there does not appear to be any direct effort to engage his thought in that particular; but the sentiment is there, and memory will deliver them at some future time. On account of such teaching I have often wished that the A B C of Bee Culture could be found in every family in our land. It seems to me that it would make even the calloused loafer feel out of joint. Its teachings would be especially beneficial to the several classes that live wholly or in part on charity, and survive on account of the ignorance of their fellows.

As before stated, the author has a faculty of wording his descriptions of mechanical things in a way that they can not be misunderstood. In this book, among other things, he tells the reader how to make a bee-hive. He tells him what kind of lumber to select; gives him a rule as to the warping and shrinking of the lumber; the tools that he will need; and all the necessary preparation for hive-making is fully explained. He then gives the exact measurement of the various pieces that shall form the hive, and tells him how to make a pattern for each piece so that all the hives he makes shall be of uniform dimension, and so they shall conform in all respects to the standard measurement of that kind of hive throughout the United States. He is explicit in every description and in every measurement, and to all the material, even to the nails and the paint. Every thing treated of in this book is handled and explained in the same careful manner. When the reader has read the author's description of hive-making he will begin to understand why this great plant that turns out more work (bee-fixtures) than any other of the same kind in the world, is a financial success; and why it is that all of the work sent out from that establishment is of superior workmanship, and why, in the filling of all orders, and in all accounts and in all correspondence, so few errors are made.

I have never met the author; have never been in Medina; have never been so fortunate as to meet any person that has ever been in any wise connected with the people or the work at the "Home of the Honey-bee." This criticism, then, is wholly based upon the literature from that establishment, on my personal dealings with them, and upon considerable of the intuitive. If I am unfair in this criticism, I err through ignorance and not through malice. If, on the other hand, I am too generous in my praise, it came not through any desire to flatter.

[Mr. Porter speaks of the high quality of our half-tone engravings, and criticises some of the zinc etchings that have gone with Rambler's articles. Of course, zinc etchings can not be fairly compared with half-tones, because they are entirely different in character. They are what the name signifies—a gradual gradation of shades of white and black; and the result is a beautiful soft picture that must necessarily be an exact copy of the photograph. But a zinc etching is a pen-drawing, usually cheaper, and better adapted to caricature. They are free-hand, and like every thing else of the kind vary in quality. Perhaps one drawing might please one and yet offend the taste of another. I grant that one of the pictures referred to by Mr. Porter is not very appetizing, for it represents one of Rambler's friends so seasick that he just *had* to visit the boat-rail and—well, you remember the rest. This I would hardly call "coarse in sentiment."

While some of Mr. Murray's sketches might be improved, the general character of them is such that our readers have been greatly pleased; and some have even gone so far as to say it was Murray who made Rambler's articles what they were.

Mr. Porter criticises another thing that is perhaps objectionable to some; namely, our referring to familiar persons in and about the Home of the Honey-bees in a familiar way. The fact of the matter is, our readers have come to know us as one big family, and seem to have a proprietary interest in us. It is too impersonal to say that all things are done by The A. I. Root Co. It is much more satisfactory to our readers, I am sure, to know that A. I. R. wrote this, E. R. R. that, instead of hiding under the editorial we; and when we refer to John, our business manager, "W. P.," the proofreader, "Barney," the boss printer, "Merwin," the apiarist, Mike and Jack, the team, we are referring to real persons and real horses. To leave such persons and things buried—completely buried in the A. I. Root Co.—would make a soulless and impersonal thing out of the company. GLEANINGS takes a certain pride in avoiding old-time conventionalities.

Taking it all in all, I wish, in behalf of the A. I. Root Co., to thank Mr. Porter for his very frank and fair criticisms. Where he has criticised there has been some ground for it—no smoke without *some* fire; and you may be sure we shall try to profit by what he has said, even from the last Root baby or Calvert baby, up to the old Root of all.—ED.]

BEE-PARALYSIS CONTAGIOUS.

I see in GLEANINGS that some of the bee-keepers say that bee-paralysis is not contagious. If they had had the experience that we have had they would know better.

New Orleans, La. F. A. CALLAWAY.

[Yes, indeed, bee-paralysis is contagious.—ED.]

WATERY-APPEARING CAPPING.

Question.—In the fall of 1894 I Italianized a part of my apiary, and during the season of 1895 the colonies which were so Italianized gave me section honey which looked badly on account of the capping to the cells apparently lying flat on the honey, with no air-space under the capping. I had noticed a very little such before, in colonies that had a trace of Italian blood in them; but the Italianized colonies gave two-thirds of all the honey they made, of such a watery appearance that it hurt the sale of my honey much. I do not recollect ever seeing any thing regarding this matter in print, and ask if this capping close to the honey is a characteristic of the Italian bee.

Answer.—The matter of watery-appearing honey was the subject of much discussion at our bee conventions and elsewhere in the early seventies, at about the time the Italian bee had obtained a good foothold in the United States, and very many condemned them on account of their being so economical of wax and space as to give their comb honey the appearance our questioner speaks of. If the questioner had noticed more closely he would not only have discovered that, besides there being no air between the capping and the honey, the capping itself contained less than one-half the thickness in wax that is used by the black bees. While the Italian bee was condemned by many comb-honey men on account of their bad-appearing honey, yet those who used the extractor were loud in their praise of this quality; "for," said they, "as less wax is used, less honey will be consumed for wax secretion, and this will give us the amount of honey which the black bees use in secreting wax for us to turn directly into cash." Hence it came about that the Italian bee was especially recommended for an apiary worked for extracted honey, while the blacks and hybrids were thought by some to be the better bees for comb honey. Not long after this it was noticed that certain strains of the Italian bee, and those coming from mothers many generations off from imported stock, gave combs of a whiteness which nearly if not quite equaled those produced by black bees, and so we set to breeding in this direction till the success along this white capping line was so great that scarcely a thing about the watery appearance of comb honey has appeared for the past eight or ten years in our bee-papers. Here lies one of the objections made by some against the further importation of bees from Italy, that, by such importations, we have a new warfare to begin till we can breed this watery-capping propensity out of them. While I think there is something in this objection, still, so far as I know from personal experience, and some facts gleaned from others, a great advance along the line of white capping of comb has been made in Italy as well as in this country; and our questioner must have gotten hold of some of the very worst bees along this line which are imported from Italy to-day. With me the Cyprian bees were worse along this watery-appearing-comb line than the Italians; while the Syro-Italian bees, sent out by a prominent apiarist, were the worst I ever saw—so much so that their honey was hardly salable at any price, without explanation, as the people looked upon it with suspicion of adulteration, or that it was glucose capped by machinery, according to the "fake" that was then abroad in the land. Had it not been for the many good qualities of the Italian bee, this quality of poor-looking comb honey, that was noticed at the start, would have doomed them just as surely as the stinging propensity did the Cyprians. But the Italian bee is in this country for its many good qualities, and it is here to stay for all time, and in time the objection spoken of by our questioner will be a thing entirely of the past.

CLIPPING QUEENS' WINGS.

Question.—I desire to clip the wings of my queens this year. What is the best way to clip, and when is the best time to do it?

Answer.—First, I will answer as to time: When apple-trees and dandelions are in bloom is the *best* time that I know of to clip the wings of queens, as at that time of the year there are not so many bees in the way, this making it easier to find the queen, and it has also become warm enough so that there is little danger of chilling the brood if the combs are out of the hive some little time. Then the queen is apt to be laying up to her greatest capacity, which makes her more slow of motion, and easy to see. But, having really decided to clip our queens, the time to do this is at any time when we see any queen not clipped which we are sure is a laying one. Thus I am always prepared to clip any queen I may find which is laying, and has whole wings; and, besides this, I go over the apiary during fruit bloom to make sure that *all* are clipped. Now, how shall we clip? Some tell us to clip with scissors, doing so with the queen standing on the comb, cutting off what you happen to catch at the time the scissors are shut. Others say, take the queen by the thorax, and then deliberately cut just so much of the larger wing on the right or left side, just as seems good to them; while others have a clipping-device to run the queen in, so that she will be like a cow in a stanchion, etc., all of which are undoubtedly practical in the hands of those who are accustomed to their use. My way, although I do not claim for it the *best*, is as follows: Have the small blade of your jack-

knife very sharp, the same being open, and near at hand. Hunt the queen, and, when found, catch her by the wings with the thumb and forefinger of the left hand. Now take the knife in the right hand, and place the sharp blade on the wing, wings, or the amount you wish to cut off; lower both hands to within an inch of the top-bars to the frames, when you are to draw the knife a little till the queen falls to the frames, when, of course, you will raise the knife from the finger or thumb. No danger of cutting yourself if you stop as soon as the queen falls.

From Our Neighbors' Fields.

We note the color craze among beginners as of yore. Dear friends, will you listen to one who has been there? If so, do not place too much stress on color, but look for a honey crop, and use the bees that bring in the largest yields.—*The Southland Queen.*

We have just received a sample lot of The A. I. Root Co.'s new Weed process foundation, and it looks very fine indeed. It does look and seem as though this foundation was perfection, as it is smooth, bright, and uniform. We will give it a test as early as possible, and report.—*The Southland Queen.*

ABOUT FOUNDATION.

Ought not foundation-makers to follow the bees? There is a most beautiful half-tone picture of a frame of comb on page 174 of GLEANINGS of March 1. I notice that the cells are built the unnatural way, and it indicates that foundation has been used, so that the bees were forced to follow the wrong pattern in building comb. I have examined a number of specimens of comb, and noticed that, whenever bees are not hampered by the pattern of the foundation, they build their cells so that two of the sides are horizontal, or parallel with the bottom-bar. T. S. FORD.

Columbia, Miss.

[We think it is the aim of our prominent foundation-makers, as well as others, to follow nature in the manufacture of foundation. It is claimed that the new Weed process foundation will overcome most of the difficulties you mention. The Dadants and Roots are now making the new-process foundation. We have some on hand, and like it better than any other kind, so far as tried. We have learned no right or wrong side to foundation, but it must be fastened to the frames properly or it will break or sag. We have no trouble of late years with any kind of foundation breaking down, regardless of the weather.—*Ed. Southland Queen.*]

IMPORTATION OF APIS DORSATA.

I am thoroughly convinced that a great deal more is being made out of the importation of Apis dorsata than the circumstances warrant. It will cost but little to secure a few of these bees to test their merits, and I do not think that the Government should be asked to go to great expense in order to make any experiments along this line. There are other things of more importance to bee-keepers than the importation of these bees, which should have attention first.

This agitation seems to be mostly in the interest of one man, who seems to want the job of going after Apis dorsata. It would be better, it seems to me, to wait until he has shown a disposition to deal fairly and honestly with his fellow bee-keepers as to some matters he now has in hand before he receives any new commissions.

I for one do not think that, under the circumstances, these bees would prove to be a very valuable addition to the wealth of the bee-keepers of the United States.

EMERSON T. ABBOTT.

—*American Bee Journal.*

TO THOSE WHO DESIRE ANSWERS BY MAIL.

Notwithstanding I have more than once said in print that I can not make answer by mail, I still get a good many requests of that kind, and there seems to be a feeling that a stamp enclosed puts one under obligation to send a written answer. A little thought ought to show the unreasonableness of this. If I answer one by mail there's no good reason why I should not answer another; and as in most cases it would be a little more desirable to have an answer by mail sooner than it could be had in print, very few would want answers in print, and a large part of my time would be taken up writing letters. I'm glad to answer as well as I can in print, for in that case I'm paid for it, and many others have the benefit of the answer; so when you ask for an answer, please always say in what place you want the answer, and don't expect an exception to be made in your case.

I know it often seems as if a man must be very unaccommodating who will not answer a question by mail that requires only a few words; but sometimes an answer of three words may require an hour of looking up the matter; and, even if it didn't, there's no reason why you should be treated any differently from others. C. C. MILLER.

—*American Bee Journal.*

BICYCLES.

The *Times* would be pleased to go on record, here and now, to the effect that the bicycle has come to mankind as a revelation and revolution in personal transportation. It is not here in the nature of a fad that shoots across the horizon of amusement, and declines like a spent meteor, but to stay and to grow better, more popular, and more useful.

A few days since, we saw a father leading along the walk a bright active little son about eight years of age. A bicycle passed by in the street; the little fellow, instinctively impressed with the unfettered, rapid, and easy victory over time and space, watched the speedy flight with joy, his every nerve exhilarated with the manifestation of one of man's greatest turns in the wheel of progress—one the truth of which he could feel—lagged back, only to be yanked up with the cruel exclamation, "Come along; don't be chasin' bicycles all the time." This parent meant well, but he did very badly. In a cold and heartless speech, one that should never be indulged in whether our boys are doing right or wrong, this father rebuked the exercise of the highest ambition that could seize the mind of the child he loved as he loved himself. He didn't see; misconception was all that made him perpetrate the wrong—a wrong that must finally react upon himself.

Those who have an idea that, "the bicycle craze will soon be over" must realize but little of its real relation to mankind, and be entirely forgetful of the fact that, after years of increased adoption, scarcely an abandonment can be found. All will ride who rode before, and all who ride will ride the more.—*Dowagiac Times.*

KEEPING BEES IN A WARM ROOM THE YEAR ROUND; HOW THEY CAN BE SUCCESSFULLY WINTERED IN A ROOM OF 70°.

For the past six years I have successfully wintered bees in a warm room which usually ranged from 50° to 70°, and for four years have had one or two hives in a window of the Normal Building of this place. They are in observatory hives, with glass sides fully exposed the year round. During the winter they seem quite at home, and very often single bees can be seen crawling about with no signs of uneasiness, and the cluster is in its usual semi-dormant normal state, with no signs of disease. They show no inclination to fly, except in propitious weather—especially if the entrance is shaded if in the sun. Of course, they begin brood-rearing very early, which is an objection unless the bee-keeper wishes to relieve them of some of their hatching brood to build up weaker colonies.

Prior to building his house-apiary, our friend F. A. Salisbury paid me a visit during the winter, and was so well pleased with results above given, that immediately he made preparations to build his house-apiary, which has been described in GLEANINGS, with arrangements for artificial heating if necessary, but he tells me that, with 100 colonies, a proper temperature is maintained.

I was surprised myself to know that, for weeks at a time, they could thus be confined in so high a temperature, and maintain a normal condition; but, as before stated, when they have the freedom to fly at all times they do not care to do so any more than if they were wintering outside in the open air.

I give you this statement because it may be useful to some of your readers, and because I have never seen in bee-literature a similar report. F. H. CYRENIUS.

"FOR PURPOSES OF INCOME."

Editor Gleanings:—Referring to Dr. Miller's Straw of April 15th I stand corrected. I use 19 combs to the hive, and figured the thing out on that basis in the rough draft of my article. In re-writing it, I thought that perhaps 15 combs would be more nearly an average, and changed the money part accordingly, but forgot to change the number of combs from 19 to 15. You people evidently do not read my article carefully. I state that I consider the combs worth 75 cents *for purposes of income.* I can *buy* hives, bees, combs, and all, for one-third of the $14.00. I can also buy a cow for $30.00; but if she paid only 10 per cent on her cost she would find her way to the "shambles" pretty quick. I have heard at least one of our most successful bee-keepers (J. F. McIntyre) estimate his combs, for income purposes, at $1.00 each. I think that is a little high. The question is, Is the use of a comb during a season worth to you the interest you could obtain on 75 cts.? If so, my estimate is correct.

I have bought bees in two-story hives — Gallup frame — as low as $1.50 per hive, and have never paid over $3.75 for any I have ever bought. A few years ago I bought a cow for $40.00. I sold $158 worth of milk and butter from her in 12 months. She also gave me a calf, and we had what milk and butter we used in the family. I set the calf and what we used ourselves against her keep. Now, what was the income value of that cow? Was it her first cost? The income value of property is fixed by what it will produce. The *cost* of the property will vary with circumstances. C. H. CLAYTON.

Lang, Cal., April 24.

[But can you really figure combs at 75 cents, even "for purposes of income," so long as you can buy them for one-third that or less? For instance, a bee-journal costing only $1.00 may save you $100 in one year. A common fifty-cent pocket-knife may be worth to me several times its cost. Indeed, I have seen the time when I would have given dollars for a single crooked pin. But intrinsically neither the knife nor the pin, in items of cost, should be figured at more than the market values. Insurance adjusters don't care a fig how much a machine is worth "for purposes of income," but only for what it can be replaced.—ED.]

IN this issue it will be noticed that we have started a department, "From Our Neighbors' Fields." In times past I have made selections from the various bee-publications; but these were confined mainly to the editorial department, and took much space, and oftentimes required a little introductory matter. Hereafter most of such items will be put into a department by itself, properly credited. It will be made up of choice selections from our apicultural exchanges.

THE following appears in the *Pacific Bee Journal* in their issue for April:

GLEANINGS is just a grand bee paper; but, say, isn't she making a hard fight to take California away from the P. B. J.? There are no less than five articles from California bee-keepers in the last issue, April 1, '96. Bee-keepers, don't help Gleanings to knock down your home bee-paper. You have a hard 'nuff time as it is, with the low price of honey. Keep up your paper, and thus keep up your own business and yourselves.

Why, bless your heart, the copy of the *Pacific Bee Journal* from which the above was taken

was the first one we have received. In fact, we were not aware that the *Journal* was out. We could hardly, then, have been making a "hard fight" to take away California subscribers. If you will turn to our issue for December 15, last year, you will see that we gave the *Pacific Bee Journal* a good send-off, even before it was born. This, surely, ought to exonerate us from the charge of *intentionally* ignoring the paper.

It presents a really creditable appearance; and its articles are from some of the bright and practical bee-keepers of California.

THE following unsolicited testimonial regarding GLEANINGS as an advertising medium speaks for itself:

Mr. A. I. Root:—During the past year we have used many advertising mediums, and a summary of the results obtained shows GLEANINGS IN BEE CULTURE to be far ahead of the other mediums used, in proportion to the expense. It gives us pleasure to send you this unsolicited testimonial.

THE MARKET GARDEN CO.,
F. W. LEAVITT, Manager.

Minneapolis, Minn., May 7, 1896.

We desire to thank the *Market Gardener* for this very kind favor. If more of our advertisers would take pains to acknowedge the merits of different periodicals in some such way as this it would not only help the advertising medium itself, but advertisers, in the selection of their papers.

IN view of what some of the correspondents of the *American Bee Journal* have said, a sample of which we give in our new department, "From Our Neighbors' Fields," in this issue, and in view of the further fact that *Apis dorsata* would be of but little or no use to us for the purpose of fertilizing the flora of this country, GLEANINGS is opposed to any action on the part of the general government for importing these bees to our country. It would involve considerable expense, and very little if any good would result, even if the expedition were successful. Moreover, if money is to be used by the general government for the benefit of bee-keeping, it can be much more wisely expended in other ways — for instance, the United States Experiment Station, under the wing of the Department of Agriculture; or a national honey and bee show at Washington would be more acceptable to the mass of bee keepers.

C. W. DAYTON, in the *Review*, writing on the subject of glucose in California, intimates that, by the heading I put on an article he sent in, and which was published some time ago in these columns, I entirely "changed the aspect" of said article; and that, by that heading, I made it appear as if he, Mr. Dayton, was "out of sorts at everybody, bee-keepers included." When I first read the *Review* article, I was quite inclined to believe that I had, unintentionally, slightly changed the thought of the article; but upon looking it up I can not see but that the heading clear through is a true index to the whole article. I would say, in explanation, that Mr. Dayton intimated in letters that I had changed the wording of the manuscript itself, and therefore requested that I return one of the pages, which I did. Before doing so, I carefully compared this page with that part of the article which he thought had been changed; but I found that we had printed it verbatim—word for word. If Mr. Dayton said some things that he wishes now he had not said, as seems to be indicated by the fact that he could not believe he had written what the cold print shows, he should not try to saddle the blame on the editor who put the heading on his article. The fact of the matter is, his statements were a little overdrawn, and I said as much in my footnote at the end. I did not then and do not now believe that honey is adulterated in California, with glucose, to the extent that Mr. Dayton would have us believe; but if there is adulteration there, I believe most heartily in ferreting it out and bringing the guilty ones to justice.

THE DANZENBAKER HIVE A SUCCESS.

I am using some of the Danzenbaker hives, and expect to use them entirely, as I don't exactly live in the land of milk and honey that Mr. W. W. Somerford mentions in Mar. 1st issue, page 179. The hive he prefers is a ten-frame, three to four stories high. It may do in Texas, but is no good here, as I have tried the ten-frame Simplicity, and have discarded it.

On page 260, April 1, Mr. J. E. Hand says that his objection to the Danzenbaker hive is the difficulty he had in a hive he used several years ago with end cleats; that his trouble was in getting the first frame. Doubtless he has not used or even seen one of Mr. Danzenbaker's hives, as they have follower and wedge, and present no trouble in removing the first frame. As that seems to be his only objection, when he uses one he will doubtless use them entirely. The bottom and cover alone are quite an advantage over other hives. I have several eight-frame Dovetailed hives, in which I am going to use the Danzenbaker frames and sections lengthwise, if I can't sell them. I am also going to use some of the sections crosswise in the Dovetailed super; but I am of the opinion of Dr. Miller, page 265, Apr. 1, that sections are better running the same way that the frames run in the lower story. S. D. MATTHEWS.

Hamilton. N. C., Apr. 20.

OUR HOMES.

Not to be ministered unto, but to minister.—MATT. 20:28.

Thou hast been faithful over a few things; I will make thee ruler over many things.—MATT. 25:21.

Perhaps I should apologize for using these old, old texts over again; but the only excuse I shall offer now is that it seems to me there is still a vast unexplored region of not only joy, peace, and happiness, but prosperity, in this line of taking up the duties of a servant—yes, waiting on others instead of waiting for somebody to wait on *you*.

One special department of our business just now has been delegated to me because I begged to have that department. I refer to the collection department, or looking after people who do not pay or who can not do so; and I have succeeded excellently in at least *one* line of this work. I have induced people to write and tell me their circumstances; and when the bookkeepers have declared that these people would not answer a word, not even if we inclosed an addressed postal card to them, I have succeeded in getting replies. In studying the case I often say, "Bring me the last letter you can from this person;" and from this one letter—from even a brief scrap of the person's handwriting—I often gather the circumstances and an idea of the character of the person; or, if you choose, I become a little acquainted with them. Oh what a grand thing it is in this world of ours to become acquainted with our neighbors! I finally get good letters telling all about the home, the wife, and the dear children; and oftentimes, where there have been hard and unpleasant feelings toward The A. I. Root Co., very kind and pleasant relations have been established. Well, in these letters telling about the homes where the readers of GLEANINGS live I have heard of much disappointment. I have heard of failure of crops; I have heard of undertakings and new kinds of business that have turned out badly. Some of these enterprises have brought the good friends deeper into debt instead of getting them out of it. And now I want to tell you of one reason *why* people fail in business—in any kind of business, if you choose, because the failure is in the line of our text.

You may say, "Mr. Root, it is not because we do not work *hard* enough here at our home, for we are already *overworked*, every one of us." But it is not because you do not work enough. Let me give you some illustrations. A few days ago I saw a farmer standing on the walk in front of our store. His wife was sitting in the wagon. I saw they were worried about something, and so I pleasantly asked them about it. The man said:

"Mr. Root, where is your warehouse?"

"Why, we have several warehouses. Why do you ask?"

"I want the one where you keep your poultry-netting. We have been waiting here a long while for one of your men to bring some netting from the warehouse; and if I knew where it was I would go down and get the netting myself, for I must get off home."

I went into the store and made inquiries, and found that nobody had gone to the warehouse for his netting. The clerk who took his order asked another clerk to go and bring the desired width and quality. But clerk No. 2 was busy with somebody else, and didn't go, and *supposed* that clerk No. 1 went for it. Meanwhile the man was walking up and down in front of the store, waiting. His team was standing idle during a beautiful April day; and the good wife—nobody knows the circumstances that made it needful *she* should be at home. Let me digress a little.

During the present spring our people have sent out a great number of price lists of household conveniences—something like three or four thousand in our county alone. The postage on them was thirty or forty dollars. I made objection when I knew of the project; but I was told there were lots of people in our county who did not know what goods we keep, and especially did not know how low we offer to sell things. If I did not do so, I felt like suggesting that we should spend more brains and muscle in waiting on people better when they come to us, and in this way advertise our business rather than to have so many printed catalogs that cost so much money. I wonder if this suggestion fits any of the readers of GLEANINGS. Dear friends, I have had quite a little experience in different kinds of business. I have seen men succeed, and I have seen them fail; and I do believe a great part of the failures have been because the owners of the business did not take care of the trade when it *came* to them. I have known quite a good many who have spent time and money—yes, and brains—on elaborate and carefully prepared circulars, and then I have known them to *lose* the trade just because their customers were not promptly and carefully waited on when they came in answer to these printed invitations. My opinion is, that here at our place of business customers get better care where they send their orders by mail than where they come in person—at least, that is many times the case. Our force of clerks is better organized for office work than it is for the customer who comes in person. It is hard and fatiguing work to wait on customers personally, especially where there are as many departments as we have in our business; but yet it is the *personal* work that builds up business and that *saves souls*. You may suggest to me something like this:

"Mr. Root, don't be hard on your clerks. The case you mention was a misunderstanding. It probably does not happen often."

Well, this may be true; but it does happen too often in our business, and in the same way in every other place of business. I once came up behind a customer when he did not know I was around. He was saying something like this:

"These people here sell goods low, it is true; but I have a good many times thought I would never come here to trade again in the world, for it actually costs about as much as a thing is worth to get somebody to find what you want and tell you the price of it."

And this reminds me, after I succeeded in getting the man's wire netting from the warehouse, and putting it in his wagon, the clerk who brought it did not know what the price was, and more delay was caused because we had to hunt for somebody who *did* know. Perhaps I should say there is at present a tremendous demand for poultry-netting. The different widths, the different sizes of mesh and wire, make many complications; then we have remnants which we offer at special low prices; and, again, the stock takes up so much room that it has to be kept away from the store in a separate building. Somebody who has had experience in mercantile business may say we have not competent men in our retail store, and that perhaps we do not pay wages enough to get a good man. This may be true; and if you will all agree not to tell anybody I will say to you confidentially that we are almost *all the while* wanting *better* men and *better* women (we have a few of them, but we need *more*) in every department in our establishment. Now, do not

tell this; for if you do, a great lot of people will rush here to Medina to get a situation. No doubt they *think* they could fill the bill. But the trouble is, there are only a few in this world of ours who have got at the real great truth in our little text—"Not to be ministered unto, but to minister."

Shall I try to tell you what is needed in such cases? First, we want a clerk who is so well posted in regard to affairs that he recognizes that farmers generally are having a hard time to get along. They are the victims, to a certain extent, of circumstances. Every person ought to have a kindly feeling for the general farming community; and he ought especially to try not to annoy them and hinder them in *their* work. The clerk who took this man's order for the netting should have kept the whole transaction in hand until he saw the man had what he wanted and was started off for home. If he had other customers to wait on he should have brains, ability, and mental strength to feel responsible for each and every one of them, and call the necessary help if needed. If other clerks were half-hearted or dilatory he should have presented the matter to A. I. R., who, at this season of the year, spends a good deal of his time on the sidewalk in front of the store, looking after the wants and needs of those who are so kind as to come to us. I have sometimes wished I had nothing to do but to meet people as they alight from their vehicles, ask them how we can serve them, and then see that there is no hitch nor delay in fixing them up in proper shape.

A few days ago a customer asked if we had any Battle Creek granola. I pointed to the door of the lunch-room, and told him to go in there and they would wait on him. I afterward found out, however, that the clerk inside told him we were all "sold out," and sent him away without any. He supposed it was all sold out because a great awkward box was standing in a disorderly way right in front of the goods the man asked for. The clerk could not *see* the article wanted, without moving the box or moving out of his tracks. Yes, this thing sometimes happens at other stores as well as our own, because I have known clerks to tell *me* they were sold out; but I happened to know better, and so found the goods I wanted. *myself*. Some of you may urge that the clerks in our stores and groceries are, for the most part, poorly paid. Their pay is so small they become discouraged and half-hearted. If their employer were a little more liberal, and paid them better, they would have more energy. And this reminds me: Not long ago one of the small boys was getting to be so forgetful and half-hearted about his work that we talked of letting him go. His foreman, however, said he was dissatisfied with his pay, and he intimated that, if we would raise his wages a little, he *might* take hold better. It happens, however, that I have tried this very thing a good many times, and it has never turned out well. The man, woman, or child who can not do his duty well and faithfully until he is offered a little more than he is actually worth or has *been* worth, for so doing, never makes any permanent improvement.

And this is where our second text comes in—"Thou hast been faithful over a few things; I will make thee a ruler over many things." Notice the words "hast been." The reward does not come until we have shown ourselves faithful and trustworthy. We must be faithful *first*. And so it is with earthly duties. Young people especially are oftentimes impatient because the reward does not come soon enough. Many a time have I seen people give up their work when the prospects were bright before them, just because they could not wait a little for the reward. Quite a few have written to me in regard to the Home Paper for Mar. 15, about the slave girl, and the glad willing service she rendered her deliverer. I said something then in regard to women who help to do the housework in our homes, or hired girls, if you choose. Well, since those words were written I am glad to tell you that I have come across at least *three* of these "home helpers" who are household treasures; and I happen to know that there is always somebody wanting them. I have been insisting that these good and faithful ones should be paid accordingly. In our community, hired girls get from $2.00 to $2.50 a week. Now, it seems to me absolutely "wicked" to have one price for all—the good, the bad, and the indifferent. I know of a good many indifferent ones. I do not like the expression "hired girl." They are helpers in the home. They should be not only helpers, but companions for the mothers in the home. Why not call them "home helpers" instead of hired girls? Well, now, I would pay the real good ones, the real jewels, four or five dollars a week, or a really competent woman as much as you would pay a really competent man, say a dollar a day, including board and lodging. Then the indifferent ones should have about what they earn—two or two dollars and a half. The bad ones—I mean the bad-tempered, or those who do not care, and who make it a study, apparently, to do just as little as they can, and do their work as poorly as they can and call it done—I would give this kind a dollar a week, or give them board and lodging—nothing more. This is the way we grade men, and why not grade women in the same way? then we shall be paying a premium on good behavior, exactly according to the language of our second text; and the low wages will be a proper reward for bad behavior. You may say there are some people who can not do any better—they are not "made that way," or it is not "in them." One of my boys worked quite a while for 7½ cts. an hour, and he felt badly about it. I talked the matter over with him several times; but after trying him in several different places, the general verdict of the different foremen was that 7½ cents was about the proper price. Well. this boy finally became ambitious to have a wheel of his own; but he could not very well save up money enough for a wheel unless he had more than enough to pay for his board and lodging. The wheel, however, proved to be the thing needful to stir up his ambition. All at once he took a new interest in things, and very soon the cheering report came to me that he was worth *more money*. A good many of these troubles are in consequence of half-heartedness. We do not *care* enough. Very likely we care enough about *self*, but we want to be more interested and anxious in the affairs of other people—especially of those whom we are serving or ministering unto.

I do not know but the present condition of this great nation of ours is working against these little texts. We have servants of iron and steel to wait upon us. Wheels, street-cars, telephones, and no end of devices to save labor. Perhaps we are getting into a state of affairs where we get a notion that these new agents are to do *all* the waiting, or all the ministering, if you choose; but, O my dear friends! none of these things can serve us well and faithfully without some patient, hard-working, *self-sacrificing human life* to guide and direct it. With all these new things there comes a *tremendous* demand for somebody who will be responsible for their proper working. We want *no end* of intelligent, faithful, industrious servants—servants who are willing to take

responsibilities. Human life is often at stake. A man can not get a good position, and one commanding a large salary, unless he is willing to be responsible in a measure for the very lives that are committed to his care. He *agrees* to be minister, or, if you choose, *servant*, to the great busy moving world of people. A great cry is constantly welling up for faithful and *reliable* men and women—for those who are sufficiently interested to keep thoroughly posted —to know all about every thing pertaining to their line of work; and there never was a time in the history of the world when such grand opportunities were constantly opening up as now. There never was a time when men and women were offered such pay as at the present time. But the pay, mind you, goes to those who are willing to serve or minister, and not to those who must be constantly waited upon or ministered unto. I can not tell just where the trouble is in your own particular case; but God's holy book will tell you, if you make it your study. It is full of texts in the line of the sentiment that I have tried to express and explain, and it gives us the promise that God's Holy Spirit will go with it and make it plain; and when you once get to fully understand its import and meaning, oh what a glorious opportunity and privilege is yours! Instead of there being no place for you in this busy world of ours, there will be a place for you everywhere. Everybody will be glad to see you, to welcome you when you come to call on them, and to assist when you need assistance. Only let these little texts find a permanent abiding-place and lodging-place in your heart. It will not fetter you, for it is not bondage at all when you take it right. In fact, it is the spirit of freedom itself—freedom that comes with Christ Jesus, the Savior of mankind, and the Lord of all, who came into this world to demonstrate and show us how to live and get along—"Not to be ministered unto, but to minister."

THE EARLY PEABODY SWEET POTATO.

Our old friend T. B. Parker, of Goldsboro, N. C., took the liberty of shipping us what he calls early sweet potatoes, and explains by saying that they are the Early Peabody. He sent them without orders, prepaid the freight, and said if they were worth any thing to us we might pay him whatever we chose; if not, they would not cost any thing. They are great big red yams; and when I first saw them I said to myself, "Why, these must be some of those big coarse yams that they raise down south. May be we can sell them, however, if we offer them very cheap." But I put two or three in my pocket and asked Mrs. Root to please have them baked for supper. Imagine my surprise when I found them the most delicious and toothsome thing in the line of sweet potatoes or yams that I ever tasted in my life; and you know I have eaten sweet potatoes all through Mississippi and Florida, and even away off in El Paso, across the river into Mexico. By the way, over in that Mexican town of Paso del Norte they sell sweet potatoes out in the streets, cooked and buttered. Well, now about the Peabody yam. Mrs. Root says you must allow for my extravagance, because, since I have got off the meat diet, I call every thing of this kind delicious; but I want you to remember I have been testing sweet potatoes this spring, and there certainly is nothing equal to a medium-sized sweet Peabody yam when baked as Mrs. Root bakes them. They are not really dry and mealy, but it seems to me they are about half way between the dry sweet potato and the moist ones. The grain is very fine, and the taste is more nearly like an exceedingly rich and sweet boiled chestnut—or, rather, a roasted chestnut — than any thing else I know of. Friend Parker says it is the earliest sweet potato known. Now, why has not somebody made a fuss about the Peabody yam before? We are going to bed a great lot of them for plants; and if I can raise as good Peabody yams here in Medina as friend Parker sent me for samples, then I shall just sail my hat clear into the top of the cut-leaved birch that is looking so handsome just now out on our lawn in front of the porch. You see, the birch has got on its spring dress of penciled green, with its dainty white branches gleaming through the beautiful foliage for a background.

TRANSPLANTING VEGETABLE-PLANTS INTO THE PLANT-BEDS.

One would almost think, after the years of experience I have had in this business, that I must have already gotten hold of most of the kinks. But we have just struck on one this spring that pleases me so much that I want to tell you about it. Transplanting when the weather is damp and rainy is all right. If the soil is fine and rich, almost anybody can make every plant grow; but during a dry time, such as we have just had in April, with the thermometer up to 90, and hot dry winds, the plants will die in spite of you. Sprinkling them with water right out in the hot sunshine will not do at all; and if the beds are soaked ever so thoroughly at night, the surface will be all dried up, and the leaves shriveled, before the first night. The way we got at the remedy was this: We had a spell of frosty nights, but the weather was very warm during the middle of the day, and so we were in the habit of putting on the glass over night. Well, one day when I was in a hurry, instead of removing the glass when it became very hot I threw a cotton sheet over it to cut off the heat of the sun. Well, these plants were neglected in some way; but the glass and cotton cloth were left over two or three days. When the cloth was finally removed I uttered an exclamation of surprise. Every leaf was as perfect as if the plants had never been moved from the greenhouse at all; and they had gotten sufficient root so that they stood the fierce glare of the sun after a very little gradual exposure. Now, here is the secret: In transplating, even in very hot weather, use your hot-bed sash for shading; and when the sun becomes *too* hot, cover the glass with shutters, cotton sheets, or blankets—whatever comes handiest—and you can not only save every plant in a thousand, but there need not be any wilting, and no setback of any consequence. The secret of it is, close-fitting sashes that are just right to keep out the frost are also just right to confine the moist air, that is kept moist by the dampness coming up from the shaded soil.

The above was intended for our last issue, but was crowded out for want of space. Since it was written I have made another important discovery, or, rather, I have run into something that was discovered long ago, and which has been neglected and forgotten. In our book, "What to Do," page 184, you will find something that describes pretty nearly the whole matter. Now, we have noticed for several years past, that, when the weather becomes very hot and dry, our lettuce—Grand Rapids, Boston Market, and all the rest—gets dark,

green, and tough, and customers complain that it is bitter; so our lettuce trade drops off until only a few customers who want it regularly the year round are almost the only purchasers. Well, we are now having a hot dry time right in the middle of May, and all the lettuce has been getting to be of poor quality in just the way I have mentioned. One day it struck me that the hot sun was what made it so dark and tough, and so I commenced shading it. The improvement was apparent in even 24 hours. Putting shutters over the beds where the sides were high enough does very well; and spreading a cotton sheet over the whole bed answers an excellent purpose. The sheet can be put on every morning as soon as the sun gets hot, and removed every night so as to let the lettuce get the dew. But the best th'ng by all odds is some sort of box to set right over the whole bed. Single plants may be covered with bushel boxes or old bee-hives or bee-hive covers. If you have any such lying around unused you can make them earn you some money by setting them over the lettuce. In just two or three days the Grand Rapids lettuce will become beautifully white, and so crisp that the leaves will break or snap in two by handling if you are not careful. The bitter taste is all gone, and you have not only handsome lettuce, but that which is delicious, juicy, and crisp. The best covering we have found are the large red boxes that we used to set over our glass sashes when they were not in use. These boxes reach from one side of the bed to the other, and a little more. This gives about the amount of ventilation you need. When we first began putting the bleached lettuce on the wagon we told the man to slip it out of the paper bags and let customers see it. The consequence was, our sales doubled or trebled almost at once, and our stock was sold out almost before we knew it.

Now, then, friends, make haste and get your lettuce covered, and astonish your customers by showing them the most beautiful lettuce ever seen, right during the hottest and dryest weather. We handle it in cheap paper bags, putting ¼ lb. into each bag. At 5 cts. a packet this gives us 20 cts. per lb., which ought to be satisfactory to any grower. My impression is, that none of the large cities have got hold of this kind of lettuce. The man who first introduces it, will make a big thing.

Now, friends get right at it and write me a postal card, and tell me how it pleases *your* customers.

CRIMSON CLOVER, WINTER OATS, ETC.

To-day, May 7, our crimson clover is getting to be just immense. T. B. Terry once invited me to come over and take a look at his medium red clover. Now I should just like to have him come and see our crimson clover. A single seed may produce from 60 to 100 flower-stalks, and each flower-stalk will produce one or more blossoms. I can not tell yet just how many seeds one blossom-head produces. And this stooling-out feature is what misleads so many. They see here and there only a little plant, and conclude there will not be enough to amount to any thing, and so plow it under. But these same little insignificant plants, if let alone, will, along in the middle of May, stool out so that a bushel basket will not cover the plant, and the stalks stand up from two to three feet high. The piece sown among buckwheat, that looked just right in April, is now altogether too much crowded, while that sown among the Ford's Early sweet corn, that seemed to be only part of a catch, spreads out in every direction so that the ground is going to be almost completely covered.

On p. 366 I said that, on the 30th of April, our Rural New-Yorker winter oats were almost ready to head out. Now, that is another of A. I. R.'s blunders. There was here and there some rye that came up among the oats. I pulled up some stalks and saw some kind of embryo head. Very likely some of our old farmers thought Bro. Root had found a new kind of oats *for sure*. or else he was indulging in some big yarns. Perhaps I shall have to admit that I never raised a crop of oats before in my life, which may partly explain my stupidity. But I have something good to tell you about the winter oats, after all. The piece of the patch that I thought was killed out by the freezing and thawing, or nearly killed out, under the influence of our nice April and May weather is going to make quite a stand, after all; and by the time oats are usually harvested I may have a pretty fair-looking field all over. It will probably be too thick where it was covered by snowdrifts.

By the way, I am becoming disgusted with rye. It has got all over my grounds, so that, whenever I try to raise clover, grass, or grain of any kind, a great part of it is *rye*. It can not get in with the crimson clover, however, for this is too early a bird for it.

THE CURRANT WORM AND LEGGETT'S POWDER-GUN.

For two or three years the worms have rather beat us, both on gooseberries and currants. This year, however, I determined to beat *them* if possible. I accordingly provided myself with one of Leggett's dry-powder guns, and we gave the bushes a good dusting with Paris green almost before the leaf was visible. Then we went over them about once in a week right straight along, being sure to get the powder down under the foliage, close to the ground. The consequence is, that at this date, May 6, not a worm has been discovered, and not a leaf is disfigured unless it has been done since I began writing this. You may say, perhaps, they have not injured bushes that were *not* treated. Not so. Both currants and gooseberries belonging to my sister, near by, are entirely stripped of their foliage. You may remember that Prof. Cook advised us to use Paris green instead of hellebore, provided we put it on before there was any fruit on the bushes; and I think somebody suggested that, if a little of the Paris green fell on the ground under the bushes, it would not come amiss. And now a word about

THE LEGGETT POWDER-GUN.

They have for some time past been claiming that they could make the dry powder do as good work as any of the liquid preparations, by the use of their gun. The great point in this is, that is saves you from carrying around heavy barrels of water. If I am correct, they state that ¼ lb. of Paris green, with their machine, can be made to cover an acre of potatoes. All you have to lug about is 4 ounces of the poison. If dissolved in water it would take a barrel or more. You may ask why the Leggett machine is better than the bellows we have advertised. It is better in this respect: You can throw the poison in a little cloud that is almost imperceptible to the eye, and yet it kills the insects. The machine is worked by crank and gear-wheels, giving a strong, steady blast; and the feeding machinery is so accurate, and easy of adjustment, that you can easily make ¼ lb. go over a whole acre. So far we rather like the new machine. The prices, however, are pretty high—$5.00 for a small one, and $7.50 for one large enough to throw the powder all through a large apple tree. For the coddling-moth, the *Rural New-Yorker* thinks it is, perhaps, just as good as liquid preparations; but for applying

the Bordeaux mixture, they have not as yet succeeded in giving us a powder that would stick to the foliage as well as the Bordeaux. By the way, the Bordeaux mixture may be found on the leaves of apple-trees and on the grass, even after a tremendously heavy rain; and this is the case when the rain comes the same day the mixture is applied. We shall use the Bordeaux mixture as a fungicide for scab; but I think that, hereafter, we shall use the powdered Paris green for all sorts of insects. We shall, however, add Paris green to the Bordeaux mixture, because we can just as well put on both as only one.

A few days ago a swarm of Colorado beetles alighted on our Thoroughbred potatoes. In the morning there was not a bug in the patch; but in the afternoon there was one on every stalk, and on some of them there were half a dozen bugs. In fact, they had done quite a little damage in only about two hours' time. We got out the Paris green; but the Thoroughbreds were so very valuable I could not wait for the bugs to become sick. So a small boy was started out with a tin basin. In about an hour he had nearly a teacupful. He went right over them again and caught almost half as many more. In fact, they were on the wing, buzzing all around. By the next morning, however, I found only one bug in the whole patch; and I could not really say which offended the bugs the more—being mashed in the road, or physicked with poison. Now, here is another funny thing:

Over in the apiary there is a cold-frame warmed by exhaust steam, perhaps 20x30 feet; and in this cold-frame is the most luxuriant growth of Thoroughbred potatoes that anybody ever saw in the line of potato foliage, I do believe. Before a heavy rainstorm laid them down the vines stood fully 3 ft. high, and they were as thick as your thumb. As they were started too early for flea-beetles or Colorado bugs, every leaf in the whole patch is bright, clean, and perfect. Now, there has never been a bug on these at all. Has the rank growth something to do with it, or is it because they have not found the patch? Those I have spoken of, where the bugs went at them so viciously, had recently been transplanted from the greenhouse, and the growth was comparatively feeble, for they had not yet got well started.

Later.—I have just made another examination, and there is not a live bug in the whole potato-patch, although I found a good many dead ones on the vines, and a good many more on the ground. Paris-green powder did it, without question; and yet the amount used was so small that one could scarcely see it at all as it came from the gun. Another thing: I have always been prejudiced against liquid Paris green, for it is so liable to injure the foliage, especially if it is used too strong. This almost imperceptibly fine dust could scarcely injure the most delicate plant. I am sure, however, the Leggett guns are too expensive. While the mechanism is rather nice, a machine that will do the same work ought to be afforded for a great deal less money. There is no need of adding any flour, lime, or any other dust, to the Paris green. The manufacturer of the guns says distinctly that pure Paris green properly applied is better than any admixture with any thing else.

DWARF ESSEX RAPE.

So much inquiry continues to come in in regard to this plant that we give place to the following which we clip from a recent issue of the *American Agriculturist:*

On moderately good land, in this State, one can raise an excellent crop of Dwarf Essex rape, which can be used as forage to feed in the stables, or it can be pastured with as good, if not better, results. We have grown it at this station the past two years, and have secured at the first cutting from 8 to 12 tons per acre 90 days after planting. We plant in rows 28 to 30 inches apart, and cultivate, giving only surface or shallow cultivation. It may be sown broadcast, but the weeds in that case are likely to make the yield per acre less than by the other method. We have allowed it to reach from three to four feet in height before cutting the first time, and even then the sheep have eaten stalk and all, not leaving any part of it. It is necessary to starve the sheep to eating it at first. They will, if turned into the rape patch, eat dry grass before they will touch the rape; but if kept there about two days they will take to it, and from that time on no trouble will be experienced, unless it is to keep them from eating too much. I know of no crop that is so easily raised that will furnish more or better sheep feed to the acre than the rape. It may be sown in May, and will be ready for pasturing in July and August. Or it may be sown in June, or even up to the latter part of July, and this last seeding will furnish, under moderately favorable circumstances, a large amount of pasture or fodder. On Ohio soil it may be sown after taking off a crop of early potatoes, or after harvesting the wheat. Our experience justifies the remark that the latter seeding grows much more rapidly than the earlier, indicating that it is well that the ground should be pretty warm before seeding in the spring. After the first cutting or eating off, it will start a second growth and will continue to grow until after the ground has been frozen several times in the fall. We have had it growing on the station grounds as late as the middle of December. Rape possesses remarkable fattening properties. The nutritive ratio of green rape as given by Wolfe is nearly one to three, while that of red clover in blossom is hardly one to six.

The other side of the rape question is found in part, at least, in the following interesting facts: When sheep are first turned in on rape, or, rather, after they have got to eating it nicely, it is necessary to guard against turning them into the rape patch when they are very hungry, as they may overeat and suffer from indigestion, or they may die from bloating. There is also danger or liability of purging at first. If the sheep have access to an old grass pasture when first turned on rape, it will be very effective in preventing scours, as well as other disorders likely to arise from impaired digestion. If the first few days are passed without trouble, it is not necessary to remove the sheep from the rape patch, but it will always be judicious to look after them frequently. The greatest objection I find to the rape plant is that no crop depletes the soil more rapidly. It is stated that lambs fed upon rape gain from seven to twelve pounds per head monthly, and that an acre of it will feed over thirty sheep for two months.

LATER FROM OUR CRIMSON CLOVER.

At this date, May 12, it is in full bloom, and we are at work plowing it under.* The bees are making quite a roaring upon it, and especially the bumble-bees. I think I never saw so many bumble-bees on a small area before; and I never saw as many Italians on the same area of *red* clover, although I think I have seen more on a good stand of alsike. I told our apiarist that honey was coming in, for I could smell it at the entrances. He thought not; but next morning he said I was right—the bees were getting a good deal of honey. It does not follow, however, that the honey comes from the crimson clover, for we have not more than an acre that is a good stand. Up in the swamp garden is a piece of asparagus that has never been cut, as we thought it was not old enough. The consequence is, it is as high as your head, and in full bloom; and I think there are more Italian bees on that asparagus—that is, more bees to the "square *inch*"—than I ever saw before. The

* There is no question but that crimson clover mellows up the ground and furnishes a nice rich soft seed-bed, for potatoes or any other crop, fully equal to a heavy growth of red clover. To get a red-clover stand it takes a part of two years; but to get an equally heavy growth—root, branch, and all—of crimson clover, it takes only a part of *one* year.

happy hum—or happy roar, rather—is "like the sound of many waters"—just the sound, in fact, that ought to bring joy to the bee-keeper's heart. Now, if we could have, say, 100 acres of asparagus, where it is not cut for market at all, I rather think we should have something interesting to tell bee-keepers.

This morning, May 13, it is amusing to see the Italian bees humming disconsolately over the plowed ground where the crimson clover stood yesterday. We let it stand for bees till only the tips of the heads were yielding honey. Now, if a single stalk can be found anywhere that did not get turned under, a great lot of bees are pouncing on it. And this reminds me that the potato-beetles are out in greater force, too, than I ever knew before. We have just had to fight for our Thoroughbreds; and wherever a volunteer potato-stalk comes up in the fields, a dozen bugs or more pounce on it at once, and devour it in no time.

LATHYRUS SILVESTRIS.

This is now fully three feet high, and is just a tangled mass of solid "feed." I am speaking, however, of the little plot in our plant-beds. That which is planted off in fields did not stand the drouth so well last summer, nor has it stood the terrible freezing and thawing so well this spring; but notwithstanding this, I think it promises well. Why do not more people tell us how it has turned out? Two years ago we sold certainly more than 1000 five-cent packets of the seed.

THE WHITTAKER ONION — SEE PAGE 751, OCTOBER, 1895.

These are just proving to be immense. There are at this date, May 13, beautiful onions, almost as large as hens' eggs, and great bright-green tops, with not a single seed-stalk to be seen in the whole patch, and they wintered with almost as perfect a stand as the Egyptian winter onion. I tell you, I would not take a good lot of money for that patch of Whittaker onions. In size they are ever so much ahead of the White Multiplier or American Pearl at this season of the year; and the large bulbs, when mature, are fully as large as the average Globe Danvers onion.

THE BREED'S WEEDER.

Since printing our illustration on page 231 we have had quite a little experience with weeders; and we are surprised to find they can be worked on our clay soil much better than we expected. For instance, we planted a piece of land to peas, beans, and corn, all the same day. The seeds were all put in with a common grain-drill having part of the holes stopped up. Just before the seed came through the ground we went over it with the weeder lengthwise, leveling up the drill-marks. A little later we went over it again crosswise, breaking every particle of crust, and leveling all furrows and depressions nicely. After the plants were well up we went through it again lengthwise, and the soil was stirred perfectly around each plant. It is just as if you had taken your fingers or a rake and pulverized and loosened the surface clear up to the very plant itself.

There is not any crust anywhere—not even a piece an inch square. No cultivator has ever been put on to the soil as yet, and I hardly think it will need one. I have just been told that a neighbor of ours raised a fine crop of corn last year from a ten-acre lot, taking no other tool into the field after the corn was planted than the Breed's weeder.

Besides the one illustrated on page 231, we have a hand weeder on wheels, made to work especially among onion-plants, and this machine is also doing splendid work among all kinds of plants too close for a horse to go through. It works a strip of ground 2½ ft. wide; but as it is rather hard work to make the fingers go down to a good depth in our clay soil, we have one boy to pull it with a piece of rope while another does the pushing. Two boys, 14 or 15 years old, it strikes me, will do more weeding, and do better work, than a gang of a dozen in the ordinary way. Of course, you must keep the weeder going, and never let any weeds get big enough to slip by the steel fingers. The question may arise, Is it not an advantage to stir some kinds of soil down to a greater depth than the weeder does it? I am not satisfied in regard to this point as yet. Our Whittaker onions are just now making bulbs. The ground is so hard that it heaves up in little chunks around the onion-bulbs. I am going to try a part of the patch by running the single-tooth wheel-hoe between the rows, say two or three inches deep, so as to loosen the ground a little deeper. You see these onions have stood all winter. The ground has not been plowed or harrowed except the surface-working we have already given it.

PLUMS AND CHICKENS.

A neighbor of ours who grows plums and raises chickens has just brought me a branch of great beautiful green plums, without a curculio sting on any one of them; and he says every plum on the whole tree is absolutely free from damage. This tree stands in a little enclosure where a dozen chickens are kept. Of course, they keep the ground entirely bare, and catch every insect which unluckily drops within their reach. Other plum-trees of the same kind, where the poultry are fenced away from the trees, have scarcely a perfect plum—they are all stung by the curculio. Now, this thing is not exactly new; but why is it that chickens are not more used to protect plums? The plum-trees in the chicken-yard have never been "bumped" once, to shake off the insects.

WHEN IS THE BEST TIME TO PLANT POTATOES?

Much depends upon the season as well as upon the locality. All things considered, for our locality I should say now. We have had, however, for years, excellent crops of potatoes when planted all through the month of June. We put them in as soon as some other crop is off and a piece of ground is vacant. Certain varieties of early potatoes have also done well when planted the fore part of July. The very best crop of Freeman we ever raised was planted in July, after strawberries. Monroe Seedling also does nicely for late planting providing the seed, like our own, was raised from a late planting the year before. Early Ohio, Freeman, Monroe Seedling, and the New Craig, are all keeping nicely so far in spite of the severe hot weather; and each and all of them are in good condition for planting.

THE CRAIGS FOR A LATE SPRING TABLE POTATO.

Mr. Root:—Those Craig potatoes in my cellar are still in good condition—in much better shape than several other sorts I have just planted for a dealer; viz., Carman No. 3, Great Divide, Pere Manor, Table King, Banner, Pride of the South, Brownell's Winner, King of Early, Early Wisconsin, Salzer Earliest, Champion of the World, Wisconsin Beauty, Maule's Thoroughbred, Burpee's Extra Early, Arizona, and others. C. N. FLANSBURGH.

Leslie, Mich., May 4.

I may explain to our readers that friend F. grew quite a quantity of Craig potatoes for us last season. His report agrees with ours exactly. The Craig potatoes are firm, solid, and have scarcely a perceptible sprout, while almost all other varieties have suffered more or less from the recent hot weather in April; and so far as quality is concerned, at this season of